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Briefing

**British firm
in trouble**

MARK'S national com-
puter manufacturer, Regnecon,
has run into liquidity
trouble and given notice to its
employees. The company
owns a powerful 24-bit
machine, the RC8000, and a
based remote batch ter-
minal, the RC3600, and
is an attractive acquisi-
tion target for either ICL or CII.
Neither company has made any comment on a
rescue.

Hardware run down

As rapid changes in the
business systems market-
place, it has decided to run
a two-year-old hardware
line focused on the FDP-
10 Avenger and an Intel
processing system, the
161. The latter will con-
tinue to be marketed in the Nor-
thwest by the firm's Scan-
line subsidiary.

Figure sale

KAGE designed by Sys-
designers to enable view-
users to access non-
na databases has been
insac to the German post
for a "six figure sum,"
while in the US the long
out talks go on with an
ed partner to launch a
viewdata service, fol-
which insac will concen-
the market for private
and closed user groups.

Ant quotations

ANT insurance quotations
are available from Legal
General, the life insurance
company which plans to install
a \$210 system at each of its
offices. These will produce
costs relating to about 20
of insurance plans, infor-
mation each plan being input
on Philips mini-cassette. The
is the result of a three-
year trial of the equipment.

Prices down

Soft of the Artec Internatio-
play 2000 word processor
been slashed by Data
tics. Single units are
£3,500 from £6,950 and
units of more than 25,
£4,950 per unit.

1/2 release

EL/2 compiler running
RPS on IBM's Series 1 has
been released by SPL following
completion of its insac-
tion development pro-
gram. SPL has also released a
code RTL/2 compiler for
Equipment's Vax-11/780.

8-bit chip

NS plans to begin ship-
processors using its own
memory chip next year.
Company says that the
chip is fully competitive
with the services per-
formed by the services per-
formed by the services per-
formed by the services per-



GEORGE BROWN...
call for a new strategy.

'Disaster' if NEB disbanded—George-Brown

IT would be disastrous if the National Enter-
prise Board were to be disbanded, according to
Lord George-Brown. Funds from such an or-
ganisation were vital to the development of
some high technology projects, he said, but he
emphasised that it should not be used as a back
door to nationalisation.

Talking in London to a group of GSI users
from Europe, Lord George-Brown said there
would be an ongoing role for an organisation
such as the NEB to provide support for deve-
lopments where risk was initially too high for
commercial investment. But it was important
that such investments should be carefully
selected.

He criticised the slowness and lack of in-
itiative of finance houses and the City in
general to provide capital for some of the
ventures now being funded by the NEB.

Recalling that as Minister responsible for the
economy he had established the Industrial
Development Corp in the Sixties to play a
similar role to the NEB, he pointed out that
although State money should be used to get
projects off the ground, such investments
should not be retained and that funds acquired
from successful ventures should go to help new
developments.

Following the General Election, he called for a
new strategy that would overcome the
economic stagnation from which, he claimed,
this country had been suffering for several
years. He believed that an essential part of such
a strategy would be a positive commitment to
the idea of a united Europe.

Linking economic decline with external
isolation he said the UK could become a leader
of the European community. With our inven-
tive ability and research capacity, he said, the
UK was ahead of the world in many areas and it
was essential that this potential should be
exploited.

Forecasting a change of administration

**Intel picks
UK Cobol
compiler**

IN what should prove a major coup for a British software
house, Micro Focus is expected to announce next month that
its CIS-Cobol compiler is to be marketed worldwide by US
microprocessor giant Intel. The compiler could become Intel's
standard Cobol capability for 8080-based systems, and will be
the first time it has shipped outside its own resources.

**All Systems
Go for Compec
Europe**

IT'S "All Systems Go" for
Compec Europe which is being
held at the Centre International
Roger in Brussels from May
8-10.

Even in the last few weeks
before the show is due to take
place, exhibition space has been
sold, and 125 stands have now
been booked, a significant in-
crease on last year's total.

The organisers expect more
than 5,000 to visit the exhibi-
tion over the three days. And
experience shows that these
people will be computer pro-
fessionals from large installa-
tions, systems designers and
software specialists working
not only in local commerce and
industry but also in the multi-
national corporations and inter-
national agencies, including of
course the EEC, which are
based in Brussels.

**Gould bids for
Fairchild**

THE Board of Fairchild
Semiconductor meets in Moun-
tain View, California today
(Thursday) to decide on an un-
solicited takeover bid from
Gould Inc, one of the potential
suitors of US microcomputer
manufacturer Modcomp (CW
December 21/28, 1978).

The £148 million bid is for 43%
of Fairchild common stock at
\$34 per share with the balance in
Gould common stock.

There are already hints that
the company will resist the bid, if
only to find a suitor offering
more attractive terms. There has
been speculation that such a
suitor could be DEC.

A taste of micros

AN imaginative work-
experience scheme to give
schoolchildren a taste of the
microelectronics industry has
been under way for a year at
Rockwell International's factory
in Anaheim, California.

Three high schools in Orange
County were approached to see if
they had maths or science
students interested in earning a
little money after school, and
during the year 18 have been
working in the plant.

"The average age is 15," said
Malcolm Northrop, Rockwell
vice-president for microelec-
tronics. "They have been doing
quite advanced technical tasks
like software maintenance for our
CAO system, computer opera-
tions, file construction and
updating of documentation. It
started on two hours a day after
school, but some are now work-
ing Saturday mornings as well."

"There is great enthusiasm
from the kids, and I think it is
particularly important that they get
work experience early. Too many
students leave secondary school
with no idea of work at all," said
Northrop.

**TUC plans
for new
technology**

A PLAN for new technology
agreements between manufac-
turers and trade unions, as a
method of overcoming the tech-
nological changes stemming
from microelectronics, is one of
the key elements set out by the
TUC in an interim report on
employment and technology,
published last week.

The major principle involved
would be the agreement that no
new technology which has ma-
jor effects on the work force
should be introduced unilater-
ally.

The report suggests that full
agreements "on the range of
negotiating issues" should be a
pre-condition of any changes in
technology in industry.

With long-term employment
prospects the main considera-
tion for the TUC, the report
stresses that "at every stage
technological change should be
linked with a reduction in the

**Battle over NEB's £8m
for disc drive firm**

DESPITE opposition from one of
the minority shareholders in
Data Recording Instruments,
the National Enterprise Board is
pressing ahead with a plan to
inject another £8 million into
DRI to establish a joint disc
drive manufacturing operation
with the Control Data sub-
sidiary, Magnetic Peripherals
Inc.

Grundy (Teddington), which
formed DRI in the 1950s and still
owns 13%, is taking legal action

75% owned by DRI and the rest
by MPI. The NEB has already
put nearly £5 million into DRI
since it took the firm over three
years ago (CW, July 26, 1978).

Buying out the NRDC could
cost the NEB another £1.5 mil-
lion, the estimated value of the
NRDC share.

DRI is currently the holding
company for three firms, New-
bury Laboratories, Data Recor-
ding Instruments and MPI.

● Turn to page 3

INSIDE THIS WEEK'S CW

SOFTWARE FAIR	
Software was a major feature of	
Manchester Fair, this year with far	
more companies taking space to	
show their products. Peter Hewitt	
reviews the systems offered in	
Software Fair (Page 7).	
Palmer reports on some more of the	
hardware on show. Page 10	
DATABASE RESPONSE	
Has Hewlett's series on Relational	
databases attracted a lot of	
attention and many readers have	
written to ask more information	
and discuss various aspects of the	
system. This week's database re-	
sponse of the series is on Page 2	
ALSO...	
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Data structures key to program design

Whom terminals hath joined...

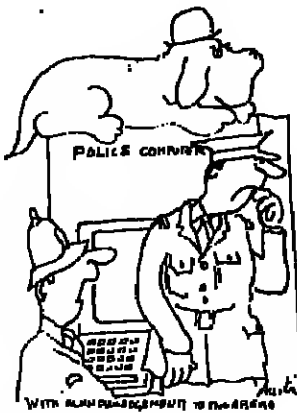
IT had to happen eventually. I suppose. An American couple has met and got engaged entirely by terminal network. A firm called Florafax has a network for sending orders for flowers around the country, and Brian Barber, a florist in Las Vegas (where else?), was seeking some information via his terminal from a customer service representative, Linda Crider, in Tulsa, Oklahoma, when he started chatting her up electronically over 1,100 miles.

They met for the wedding, in Las Vegas, but insisted that the ceremony be performed twice: once normally and once by wire, by a minister in Kentucky who has a side-line as a florist and thus also has a terminal. This reverend gentleman, Mercer McKinney of the Universal Life Church, is an old hand at officiating at bizarre weddings, having performed on a rooftop, on a diving board, and in a helicopter at 10,000 feet. (You think I'm making all this up, don't you? I've seen the pictures!)

The cost-effectiveness of data processing is amply demonstrated by the fact that while the church ceremony took 30 minutes, the computer ceremony only lasted 25.

I trust the flower company presented the happy couple with plenty of samples of its product — daisy chains made up to look like coaxial cable, and so forth. On the other hand, it might present them with a large bill for the communications costs. There's lots of money to be made out of playing Cupid these days.

OVERHEARD in a computer centre in Derby, a cleaning lady stating with great pride: "My daughter's a computer!"



"Okay, so you heard a government watchdog bark!"

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THE 10-part series on relational database which ran from October last year to January, set off considerable interest and a flood of correspondence. The aim of the series was to combine three cognate but separate topics under the umbrella of a catch-phrase title.

These topics were: "Logical" system design; Fundamentals of relational database theory; and Implementation of relational ideas in conventional file systems and in hierarchical, Codasyl set-structure and relational database management systems.

The subject that provoked most correspondence was, however, none of these, and appeared in the very last article as a parting shot. It was the combined use of relational design and Jackson-type structured programming as a thorough-going system and program design methodology.

In this article I want to look at problems which occur as a consequence of conventional system design concepts, and ways of overcoming these problems by focusing upon the structure of the data processed by these systems rather than upon the nuts and bolts of implementation.

No DP manager needs to be told that systems never stand still. There are (at least) two major causes.

1. Alterations in end-user requirements, changes in government legislation, salary scale restructuring, and a hundred-and-one other organisation-dependent changes.
2. New hardware and

software which provide a more cost-effective solution to existing problems and, because of vastly increased computing power or new functional capabilities or both, open up fresh possibilities for new systems.

Many systems designed in the late 60s and early 70s are already creaking badly. One overriding reason stems from the programming practice of the last decade, when saving a few bytes of main storage here and a few CPU cycles there was the name of the game.

Files were designed from the outset as follows:

- Choose a method of implementation (indexed sequentially, hashed random...).
- Cluster data items into files as best fits the implementation.

Program design followed a similar but even more confused course. New systems were grafted into a pre-conceived network of batch programs and "sorts," with a little interactive data entry and query thrown in for good measure.

Modular programming, widely prescribed as a panacea for the creeping disease, failed to attack the root cause. Moves to new hardware or improved file organisations became too horrifying to contemplate because the systems themselves were inextricably linked to the existing mainframe and software.

But wasn't the computer supposed to be there as a tool, a means to an end? Shouldn't the facilities available be moulded around the system and not the other way about?

The tail was (and all too often still is) wagging the dog.

A "system" is the computer-aided bridge between source data items on one hand and the end-user's reports, VDU panels, displays or whatever on the other.

The way in which the first two stages of analysis — specifying an end-user's requirements and deciding where the input data is to come from — are performed is not relevant to our purposes.

The two further main design phases — system and program design, and file design — have each been the subject of much study since 1970, and a single unifying concept has arisen: design the system around the structure of the data it processes.

Reports and VDU panels clearly have a structure which is (or should be) independent of the computer system used to create them. Less obviously, source data also shows natural clustering; for example my age, height and sex have a strong affinity with the employee number which uniquely describes me on a personnel file.

File design should take this clustering into account. Imagine a collection of files built up in such a way that each file has a single record type, and the data items (fields) which constitute each record type are clustered naturally.

These files have a number of advantages over files which are constructed according to how they are to be implemented, the most important of which is that they are inherently stable; we may add extra fields to a record type but it is very much less likely that we will move a field from one record type to another because we are making clustering — the inherent relationship between data items — work for us.

We have already found simple (and for the most part, they are simple) rules for checking that the data items which constitute a record type are clustered

naturally: they are the relational database normal forms.

Whether we construct relationship diagrams for all data items (which is a formidable task for a large system although good discipline) or draw up conventional record layout sheets and check them for Fourth Normal Form, the end product should be the same. Crudely, each field in a file depends upon the key, the whole key and nothing but the key.

However, since the files must be implemented at some stage, the record types may now be combined to give a more efficient result. One record type may be moved as a repeating group into another record type, or it may appear as a lower level segment in an IMS database.

What we don't do is to split up the fields of a record type.

Each record type created in this way is logically "clean" and, ideally, the structure of files as implemented (with repeating groups and so on) is also "clean".

If they are constructed around the inter-file relationship diagram, which simply shows the natural relationships between the keys of each record type.

We now have a logical data structure for input data. A

● Turn to page 20

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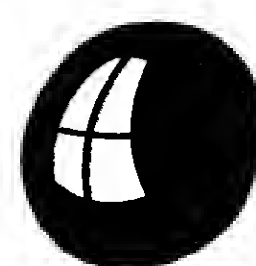
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First demonstration of a new compiler.

The first Intel Fair was held in 1976 and it has grown in size and stature every year to become one of the most significant events in the diary of the microcomputer engineer and project manager. Intel Fair '79 will be no exception to this rule offering, as it does, four simultaneous seminars, an exhibition and a video demonstration room.

A visit to the Fair is an excellent way of up-dating yourself on the latest developments in microcomputer technology and actually seeing some of the latest applications. We will be announcing and providing details of four very significant new products at the Fair. They are the world's first 1 megebit bubble memory device, the world's most advanced 8-bit

microcomputer, the first I/O controller which enables mainframe peripheral handling techniques to be applied to microcomputers, and a new COBOL compiler.

Many of the seminar papers will cover applications, and there will be special presentations for the Process Control and Data Processing engineers in addition to a series of papers for newcomers to microcomputers.

Visitors to the Fair will have every opportunity to follow their own individual interests and will be able to discuss their design problems with experts from the UK and from Europe and America, who are coming over especially for this event. Customers who have developed a microcomputer-based product will be presenting

papers at the seminars and will be demonstrating their products at the exhibition. This provides an excellent opportunity to discuss the experiences they had in bringing their products to the market place.

The main objectives of the Fair are serious. However it is, after all, a Fair, and we try to promote a 'fairground-like' atmosphere with some occasional light relief. It is an ideal opportunity to meet people who can advise you, if required, or who are in a similar stage of project development as yourself. So come along! Meet us, meet our distributors, meet our customers, learn a great deal, and enjoy yourself in the process.

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MICHIE'S PRIVATEVIEW

Prospects of a commercial explosion in 'expert systems'



WHAT price a computer program to discuss intelligently where and when to drill for uranium? Answer: about \$10 in CPU time per consultation.

Things like this system, developed by SRI International (CW, April 19), and prospects of a commercial explosion in micro-based "expert systems", have stimulated a number of readers' queries. I found the following particularly interesting:

1. Are expert systems applicable at all to commercial databases, which are often very large but relatively simple in structure?
2. If so, what sorts of data structures should be used now to build databases so that the best use can be made of expert systems when the time comes?
3. Will expert systems find their first business applications in improving the efficiency or effectiveness of data processing, or will they replace the judgment of managers? And if the latter, then of which managers?

Let me here expand on the answers I gave:

Question 1. This depends on whether the client's demands include facilities for inferential retrieval. If so, the answer is YES.

Question 2. Relationally structured databases are the most relevant. As a possible tool for databases designed with "expert system" extensions in mind, my Edinburgh colleague David Warren has looked at the predicate-logic-based language Prolog,

which he described in an earlier Guest Privateview (CW, August 24, 1978).

He will be lecturing on practically relevant aspects of Prolog at the Infotech/AISB Summer Conference at Edinburgh to be held in mid-July. This session will be introduced by J. A. Robinson, a world pioneer of computational logic.

Question 3. Effectiveness of existing data processing will be improved. Among the earliest customers will be companies which at present hire outside consultants and would prefer their own back by acquiring or developing such systems for their own use; also by selling their time as "domain specialists" to others engaged in expert system developments.

Having used the word "inferential" let us not leave it hanging. The following imaginary example is adapted from Winston's text-book "Artificial Intelligence".

A database operated by a large zoo contains facts about the animals, their pet names, their keepers, cages, diets, ages, dates of acquisition, health records, etc. and includes descriptive features ("lovely age", "awims", "has dark spots" and so on). Also recorded for each is its species — "penguin", "tiger", etc. The manager, however, also insists on being able to have this inferred for him by the system from fragmentary observations.

"This animal", he says, "which seems to have got into my back garden — I don't know what it is, or even whether it belongs in

our collection. Can I dial up the new database and find out?" Presumably he wants something like the following dialogue (MAN = manager, MAC = machine).

MAN: Call taxonomy.

MAC: Taxonomy here. Tell me some features.

MAN: Towny colour.

MAC: Is it a carnivore?

MAN: Yes.

MAC: Does it eat meat?

MAN: I hope not.

MAC: Does it have pointed teeth?

MAN: I don't know.

MAC: I am trying to establish whether it is a carnivore.

MAN: OK.

MAC: Does it have hooves?

MAN: Yes.

MAC: Does it have very long legs and neck?

MAN: No.

MAC: Does it have striped legs?

MAN: Yes.

MAC: Then it is an okapi. Want to know which rules got that?

MAN: Yes.

MAC: Rule 7, Rule 12A.

The store of taxonomic inference rules for conducting this little dialogue was adapted from pp. 145-147 of Winston. They illustrate the kind of structures (ie, pattern-based rules) which need to be in the database to facilitate this sort of retrieval. Writing "A" for "animal", the two successful rules were:

Rule 7 — If A is a mammal and has hooves then A is an ungulate.

Rule 12A — If A is an ungulate and has a towny colour and has striped legs then it is an okapi.

Three other rules were invoked during the process of eliminating the hypothesis plus one more to eliminate "giraffe."

As new knowledge or new kinds of animals come to hand and as system gaps are revealed, further rules are added incrementally. Naturally such a system can have its zoological rules replaced with similarly structured facts about cars and their makes, rare stamps, medical data, tax benefits, or anything else.

Donald Michie

¹For AISB members there are 40 places which will be disposed of on a first come first served basis. Those interested should contact Penel Montgomery, MRU, Edinburgh University, 1 Hope Park Square, Edinburgh EH8 9NW. Tel 031-887 1011, Ext 8893.

²P. H. Winston (1977). Artificial Intelligence. Reading, Mass. Addison Wesley Publishing Co.

PROGRAMMER NOTES

Software generator service now in UK

FOLLOWING our discussion of the Systematics' Cobol generator (Programmer Notes, April 19), details have come to light of a more comprehensive program suite generator that has been in commercial use in the US for a number of years.

Developed by a small Californian software house, Genasys Systems Inc, it has been used by them to complete some 200 application systems for customers. The company has just begun to offer a similar service in the UK.

Genasys began work on its generator software in the early 70s, based on the recognition that up to 70% of the work it was doing on new application systems was purely repetitive. It therefore set out to develop a productivity tool capable at least of generating the core of an application system.

The software it now uses is capable of generating complete source programs both in Cobol and PL/I, for either batch or online applications, and takes as its input high-level systems specifications in perimeter form.

The software itself consists of around 500 macros written in IBM assembler and, while it can only be run on IBM mainframes, the code generated can be compiled on a wide variety of equipment.

Simple parameters determine which Cobol standard is to be observed by the generator, the range supported including ANSI and the IBM D.E. and F compilers. The package in addition supports most major access methods, including VSAM, and

Simpler program development

DESIGNED to simplify program development under CICS, Easy-TP was one of two interesting system software products developed by OSP, of Essen, the German agents for Filetab.

Easy-TP, which runs under both OS and DOS CICS versions, allows both assembler and Cobol programmers to develop online applications without having to master CICS. Said to be learnable in two days, it is claimed to cut development time by 30%.

Apart from simplifying the program interface, it provides online testing and debugging facilities and also includes a program generator. It is priced in Germany at about £11,000.

Puzzler

THERE are several calculator-type numerals that "read" correctly (as the same figure, or a different one) when viewed upside down. These digits are:

0 1 2 5 6 8 9

giving

0 1 2 5 9 8 6

when reversed.

This peculiarity allows various addition sums to be constructed that are valid "both ways up". Here is one:

185
000
185



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SOFTWARE FILE FROM HANOVER

SOFTWARE companies were much in evidence at the Hanover Fair this year with nearly 30 firms exhibiting, many for the first time.

One reason for the expansion in numbers was undoubtedly the availability of more space. With an additional hall opened for the computer industry, several companies had for the first time obtained their own stands.

The new arrangements, which gave software firms nearly a quarter of Hall 18, meant however that they were somewhat isolated from the main hardware-oriented exhibition in Hall 1 — a good 10 minutes walk away.

Traffic in the software area was accordingly much lighter.

Exhibitors were not unhappy with the location, most being prepared to reserve

judgment until the end of the show. It provided an interesting opportunity to study styles of exhibiting and it was notable that most firms had opted for a relatively austere former, closely resembling an airport or hospital waiting room.

This approach was carried to its logical conclusion by one long-term Hanover visitor, Dr Städtler, which provided contained consulting rooms on its stand.

Dr Städtler, a consultancy and software house employing about 40 staff, has attended the fair for the last nine consecutive years. Previously though, it had had an apartment on the roof of Hall 1 and this was the first year it had had a stand.

In common with nearly all the software exhibitors, Dr Städtler emphasised that the fair provided a valuable opportunity to make or renew contacts with users or

potential customers who would be there anyway to look at new hardware.

The fairground constituted a "neutral ground", noted a spokesman, which was ideal for initial discussions on an informal basis.

"It allows us to make contacts we would never normally get, particularly for example with international visitors. They otherwise don't know that we exist, and we certainly don't know that they exist. As a rule, they represent good prospects and are not just 'killing time'."

Another first-time exhibitor was MSP, of Dortmund, one of Germany's larger software houses with some 250 professional staff and a wide-ranging sphere of activity. Apart from the new availability of space, MSP cited the emergence of small microcomputer and microcomputer systems

that could easily be transported and demonstrated, as a major factor in leading it to a shift.

The company had on its stand equipment including an IBM Series 1 and a small ADDS system, for a network of which it had developed a works railway system called Tron, along the lines of British Rail's TOPS system.

MSP was one of eight firms exhibiting under the banner of the SDU, an association of about 135 German consulting companies. The SDU's a computing services division, with about 30 members, performs much the same function as the CSA in this country.

Like the CSA, for example, it publishes contract guidelines both for studies and for software development. These are currently being examined by the Federal govern-

ment's High Court to determine whether they can be used as standard legal contracts.

The SDU differs from the CSA in that membership is restricted to companies with consultancy operations. The major part of the membership consists of general management consultants and many pure software houses are excluded.

For a software house to exhibit at Hanover is partly a question of prestige and visibility. However, with a ten-day duration and a stand price of a few thousand pounds, it is not cheap.

That so many should choose to make this investment — including many small firms — reflects not the pre-eminent status of Hanover but also the universal conviction of exhibitors that it can be highly profitable.

Fujitsu DBMS now available from Siemens

ALTHOUGH the great majority of both manufacturers and software houses at Hanover were predominantly interested in demonstrating application software, some interesting system software was also in evidence.

Definitely the most exciting in this category was the software revealed by Siemens — including an integrated DB/DC system for its top-end Japanese-built mainframes. However, some notable products were also on offer from pure software firms.

Called AIM, Siemens' new DB/DC system runs under the BS3000 operating system — Siemens' name for Fujitsu's MVS-equivalent OSIV/F4. It was developed by Fujitsu in Japan and is already in use at the Bank of Tokyo.

Marking a significant departure for Fujitsu, AIM is the first major OSIV/F4 software it has produced which is not IBM-compatible. Unlike IMS, the AIM DBMS component is Cobol-based and the system also includes a new access method designed to replace VSAM.

Among features of the system are the separation of screen design from application programs; high level system description and data manipulation languages (ADL and DML); and comprehensive security and logging mechanisms, including automatic deadlock recovery.

The system will also offer an interface to Fujitsu Network Architecture, FNA, now being referred to by Siemens as Free Network Architecture.

AIM and BS3000 will be offered on the 7.800 series, only one of which has so far been installed in Germany. This is a 6 Megabyte 7.870 installed by Siemens in Munich for demonstration purposes. First delivery to a customer is expected this autumn.

One problem with AIM could be its basic incompatibility with the UDS database provided by Siemens on its smaller mainframes running under the BS2000 operating system. The two systems will, however, be able to communicate, via planned extensions to FNA permitting BS2000 systems to be linked not only with BS3000 but also with IBM.

New software for BS2000 was also introduced by Siemens at Hanover, aimed at assisting the application development process.

The major product here was Sitok, a collection of tools addressing the complete cycle from analysis and design through to system testing and documentation.

One interesting aspect of this package is that it includes several components licensed to Siemens by their developers. The data dictionary component, for example, is Silgos' Byblos, while for module testing Siemens provides MSP's Testm-

DEC applications launch

DIGITAL EQUIPMENT's German subsidiary took advantage of the fair to launch its first applications software for the PDP-11. In a venture paralleling DEC UK's entry into this market in conjunction with Hoskyns (CW, March 29),

in contrast, though, with the UK marketing operation, which is aimed at end-users, DEC GmbH will be marketing the software to OEMs, as a basis for the development of custom systems, through

DEC's Commercial Group. The software announced at Hanover consists of packages for payroll, bookkeeping, and purchase order processing. All the software is designated "dialogorientiert" (dialogue oriented), the universal German description for online systems.

Two of the packages, Dias and Difo, are notable for being written in DSM-11, DEC's implementation of ANSI standard Mumps. Dias is a

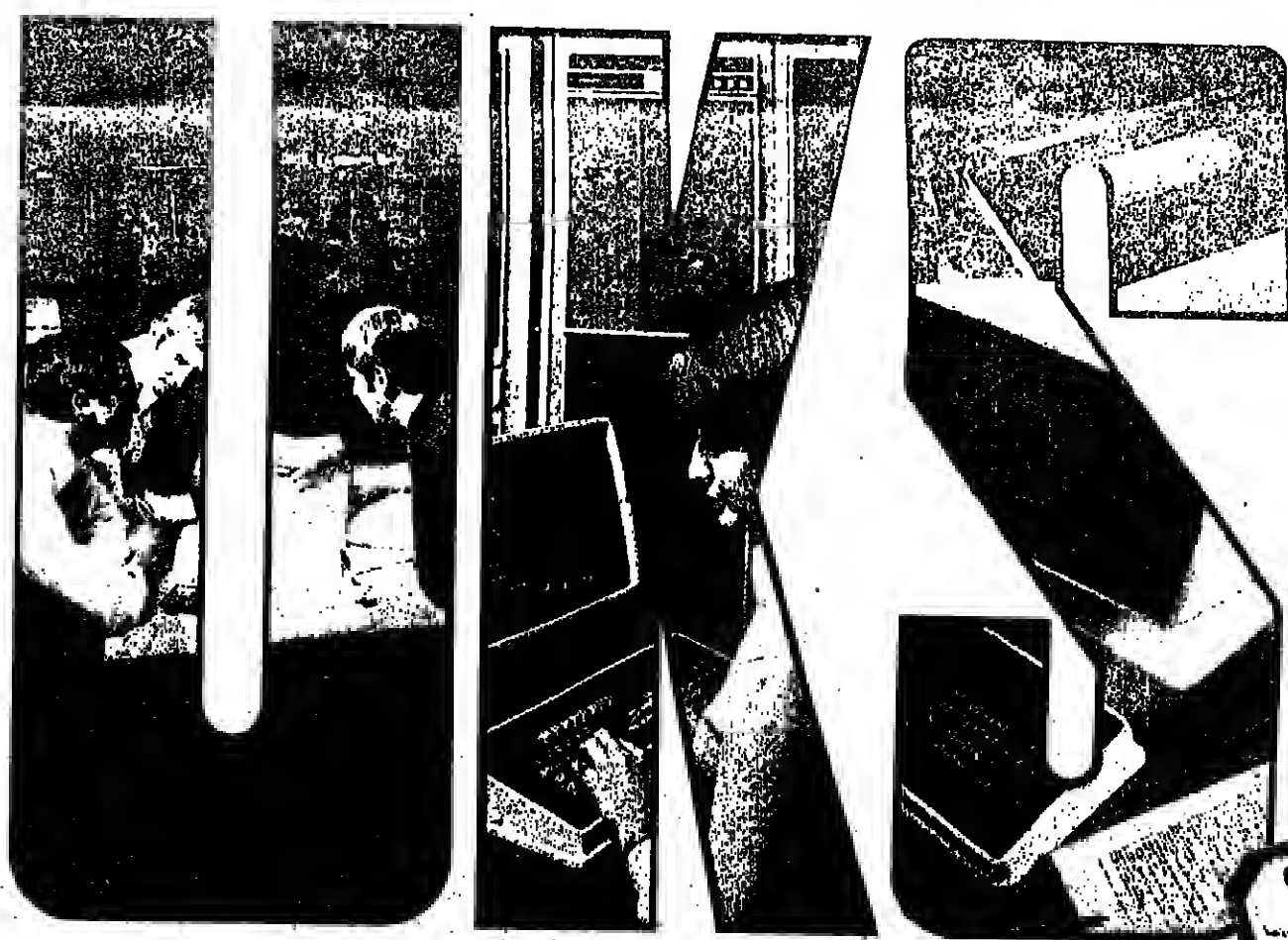
purchase order system, while Difo provides an integrated general, sales, and purchase ledger system.

Both systems run on any configuration supporting DSM-11 and can support up to 40 simultaneous users.

The other two systems, Dibu and Dilo, are specifically intended for DECdelsystem 300 and 500 configurations, and are addressed respectively at general bookkeeping and payroll applications.



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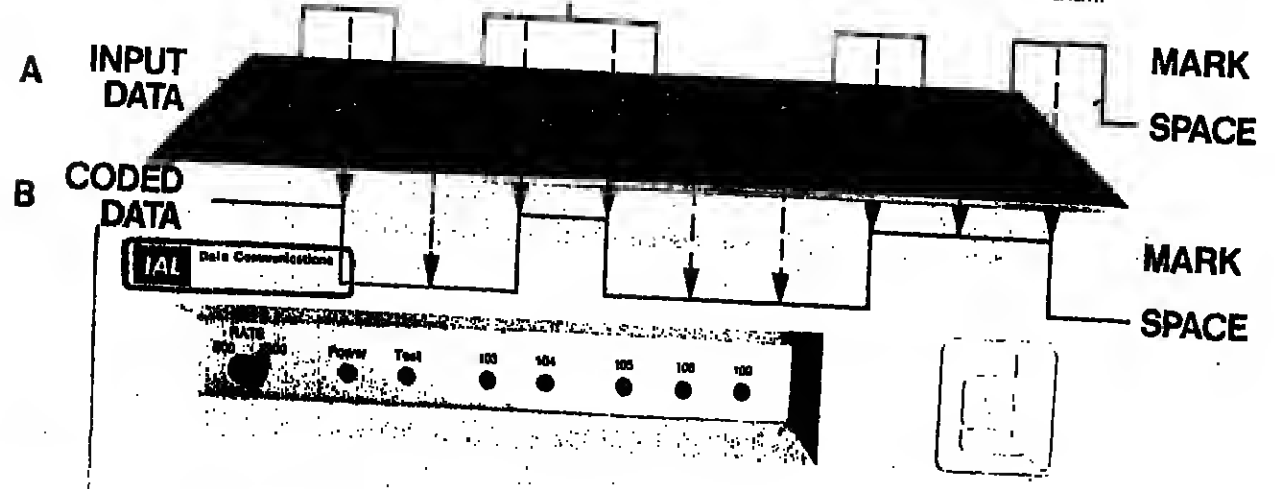
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The IDPM is popular with ops, says Cluff



Ted Cluff

THE telephones at the Institute of Data Processing Management's Covent Garden office hardly ever stop ringing these days with calls from persons wishing to learn more about the organisation.

And of the 70 to 80 new members the IDPM has recruited every month so far this year, a "considerable number" have an operations background, according to secretary-general, Ted Cluff.

"It's difficult to give an exact figure at this moment, but I would say that about one in five of our new members have operations experience," said Cluff.

Although many of them are no longer directly involved in operations — some have moved on to become DP managers, in fact — technical staff, chief operators, and operations managers are included.

Said Cluff, "Yes, it's true that many of them no longer work in the operations department, but to me that's a good sign — it shows that operators can make careers for themselves."

Cluff hopes that the new members, particularly those of chief operator and operations manager levels, will encourage operators to attend IDPM meetings.

The address of the IDPM is 51/54 Goschen Buildings, 12/13 Henrietta Street, London WC2E

Training can't simply be 'picked up' while working

WHEN you consider the many functions and responsibilities of the operator, the level and amount of training given to him often seems inadequate.

At too many installations, from the time he joins the company as a trainee, he is expected to pick up the "tricks of the trade" with a minimum of help and guidance.

If he is lucky, he will find a good natured senior colleague who is willing and able to explain the workings of system and department to him.

If he's not so lucky, and as a result makes a lot of mistakes, there is every possibility that his progress reports will be littered with remarks like "slow to learn" or "uninterested in the work", and he will have to wait a considerable time before being made up to operator grade.

So what does he need to learn

If he is to become a competent operator?

Quite obviously, he needs to know about system hardware and software, and the main applications run at the installation.

Courses on hardware and software are fine, and the trainee should be sent on them at the right stage in his development to add to his knowledge of the system and clear up any misconceptions he might have about it.

Such courses are valuable in that they will, for example, give him a deeper understanding of the operator system commands and he will discover that they can be used in ways different from the accepted norm at his site.

But to be a useful member of the operations department he must know how to apply his

knowledge of the system and applications in order to provide the best possible service for the user.

With that end in mind, most of his training must take place "hands-on", in the computer room.

For the raw recruit, the computer room is a confusing, seemingly chaotic place — there seems little form or order to it all as the operators mount tapes, type commands at the console, and carry stationery from the storeroom, and load it on the printers.

So what do you do with the trainee?

Start him off on the card readers or printers, under the supervision of an operator or senior operator — that's what.

Ideally, his supervisor should be a person interested in training, and capable of explaining the workings of the system in a clear and simple manner, with a little jargon as possible.

And as soon as the trainee is competent at loading the printers and feeding cards to the reader, he should be encouraged to use the operator commands related to those devices. This will give him a basic understanding of how to control devices by means of the operating system.

From the early stages, the trainee should be encouraged to make notes — the blank side of punch cards are ideal for recording information about operator commands, for instance — and ask questions about the work.

After a period on the printers, he might be introduced to the delights of the disc and tape units. Again he should be allowed to use the commands relating to those devices.

Next, two or three weeks at the main console, watching the senior operator run the system,

would not go amiss. There he will see how the operator "drives" the system, and also learn a bit about the major applications of the site.

After another two or three weeks tending the peripherals, the trainee should be sent on a course relating to the basics of the hardware or software, or both.

Later on, after he has gained further practical experience, it might be a good idea for him to work in the job control section for a short time to learn more about the applications run at the site.

If he follows this sort of training programme and also learns about such matters as error recovery, loop tracing and system wait states he should, all other things being equal, make a fair operator after some nine months to a year at the installation.

Operator training is an extremely important subject, and one which is given far too little attention at many sites in the industry. At some installations, however, the operators are even get to work in user departments in order to gain a better understanding of the problems they face.

I would like to hear your views on this.

Back to the Middle East

Granville Mills, who resigned as Data Centre Manager at the Tehran site of Iran Air because of the political unrest which existed in that part of the world (Op Spot, March 18), has moved back to the Middle East. He is now DP manager at an installation in Dubai, in the Persian Gulf.

Report from Auerbach points up operational causes of data loss

"ALTHOUGH statistics are hard to find, it is safe to assume that unintended 'scratches' are a prime cause of data loss on tape files.

"Because some shops still use unlabelled tapes, they depend on the operator to label, file, pull and mount the tapes properly. As a result, when correct actions are not taken, valid data tapes often become scratch tapes," according to a portfolio published by Auerbach.

Call File Retention and Back-up, it is one of the latest additions to Data Centre Operations Management*, and points out the ways in which data stored on magnetic media is sometimes destroyed, stressing the need for attention here.

According to the report, internal tape labels do afford some protection to the data, but are by no means fail, or error, safe.

Most operating systems have a facility which enables a retention date or period to be recorded on the label, but it tends to be seldom used.

And even when it is used, many operating systems will allow the operator to ignore the warning message, in the event of the date still being valid, and overwrite the tape.

Dats may also be destroyed as a result of the wrong edition of files being used. The report cites a

case in which an operator, either ignoring or failing to notice the warning message issued by this system, used the "son" version of a file in an accounts update.

The error was not discovered until several weeks later — after all the records which could have been used to rectify the mistake had been erased.

Pointing to other operational causes of data loss, the report mentions hardware malfunctions, software and program errors, and further human errors.

"Tape reels and disc packs are delicate. If someone grabs an unprotected tape reel by the outer edge rather than the hub, the tape can be crimped to the point where it is unreadable."

*Data Centre Operations Management, £120, including postage and packing. Available from updates for this year. Spectrum Heydon & Sons Ltd, Spectrum House, Millview Gardens, London NW4, Tel: 01-203 5171.

£5 hints

SEND me your hints relating to the operations environment and I will award £5 for each one published in this column. Please include the name and address of your company, and a telephone number on which you can be contacted during the daytime.

Logabax offers faster printer range for IBM 3270 users

USERS of the IBM 3270 are now offered faster and cheaper alternatives to the IBM 3284/0/8 hard copy printers by Logabax. The Logabax units are based on the LX 180 serial printer, one of the most successful OEM products manufactured in Europe.

Logabax has added an interface to the LX 180 that enables it to be used with any 3270 cluster either local or remote. Logabax believes that there are about 2,000 users of the 3270 in the UK alone. The Logabax replacement for the 3284 costs £2,000 and runs at 180 cps, compared with 40 cps for the 3274. Users of the 3288 are offered a Logabax alternative which costs £2,700, while the 3288 compatible Logabax printer is priced at £3,750 and runs at 140 lpm, compared with the 120 lpm performance of the 3288.

Delivery times of no more than two months are quoted, but Logabax is not prepared to offer rental. Asked why it had not moved into the IBM compatible printer business before now, Logabax said that it had

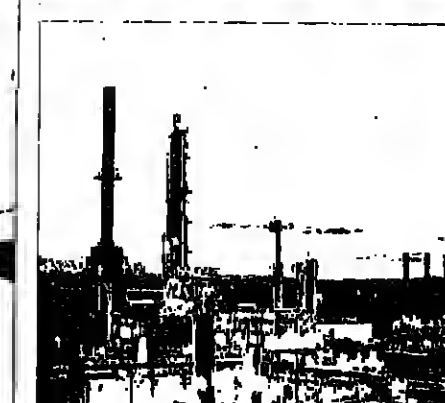
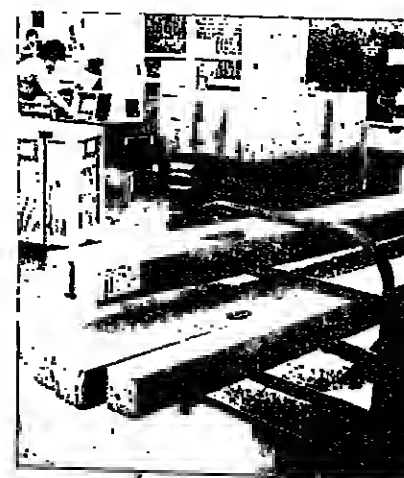
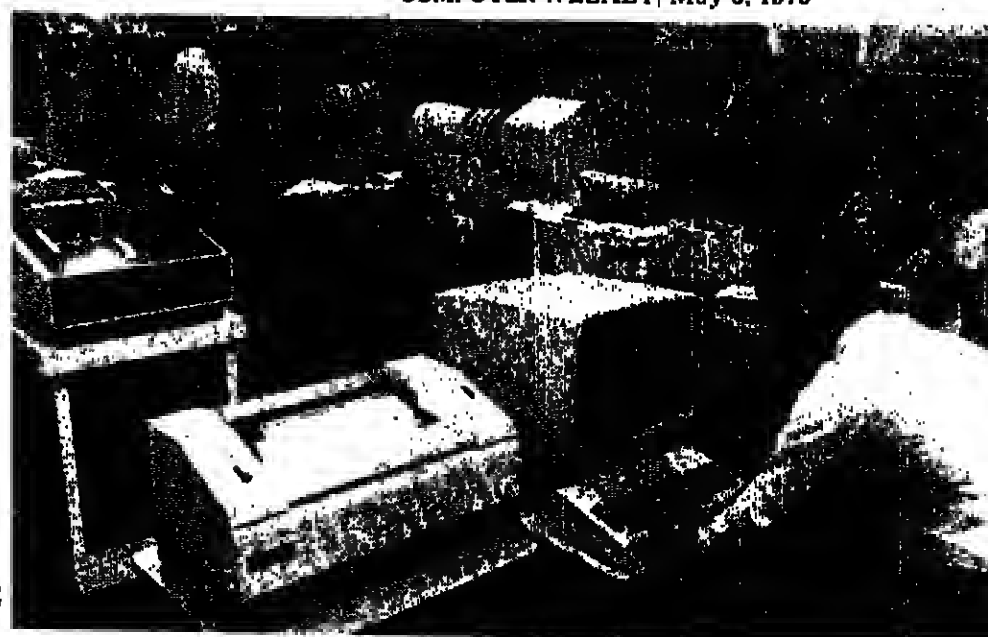
waited until its sales and field engineering operation had grown big enough to provide IBM users with the level of support they expected.

Unlike some of the other leading printer OEMs, Logabax also has a substantial end user side to its business with its family of commercial computer systems that range from desk top units costing a few thousand pounds to multi-terminal configurations in the £50,000 plus price bracket.

End user systems now account for about two thirds of the company's UK turnover which came to £2.4 million last year compared with £1.2 million in 1977. Logabax is aiming for £5 million this year.

The LX 180 is built by the Logabax parent company in France and is also manufactured under licence in the US by Computer Peripherals Inc, the joint CDC/NCR/ICL company.

The photograph shows the first IBM user to interface a Logabax printer with its 3270 kit, Western Geophysical of Iwerth, Middlesex.



Distributed Processing Control it... with DECnet.

Distributed processing is a reality.

The economies of scale have dramatically shifted from centralised batch-oriented machines to distributed, interactive processing and networks.

Many companies already have hundreds of distributed computers in laboratories, in warehouses, in sales offices, on the production lines. Digital Equipment alone has installed more than 140,000 of them.

One question remains: how to acquire

and exercise control of data. For is it reasonable to permit such autonomy that data remains unshared? Is it reasonable to permit such independence that all information is isolated, and then duplicated elsewhere, again and again?

Control is important, and DECnet is the best way to gain control and exercise it. DECnet is Digital Equipment's networking software. It permits communication among all Digital Equipment computer families using virtually any Digital Equipment operating system. And through Digital Equipment's

family of protocol emulators, you can tie non-Digital Equipment computers — including large mainframes — into your network. That network may be configured in a range of topologies — hierarchical, ring, star — matching controls to your management or organisational style and needs.

If you'd like to learn more so you can develop a strategy for controlling your distributed computers as you see fit, fill out the coupon. Talk to the company that started the trend to distributed processing.

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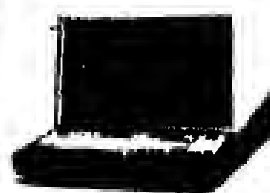
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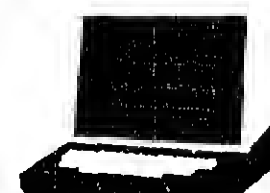
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- Full Character Editing Features
- Block Transmission from Screen by Line or Page
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Model 7001-7002

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- Teletype Compatible
- Hard Copy Printer Output
- Selectable Half or Full Duplex
- Video Output for External Monitors
- Gross Phosphor Non-glare screen



Model 7000

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PEOPLE AND EVENTS

By Judith Morris

Harvey for
Barclays

Mercantile Credit, the finance house subsidiary of Barclays Bank, announces the appointment of Derek Harvey as its deputy general manager. He will have responsibility for the future development of the company's computer systems. For the past four years, Harvey has been design manager for the Talsman system which operates at the Stock Exchange. He has also worked for GEC and Atlantic Container Line.

Pat Dentale has joined BOSS, Brown's Operating Systems Services, as a software consultant. He will specialise in telecommunications development. His former position was with Unicom, where he worked in the design of an advanced online order entry system linking channels shops to a central computer facility.

Ian Muir, a former regional director of Adler Business Systems, has been recruited by DML Computers as the manager of a sales and software team which is to market Xerox Diablo minis. The company, which operates in Scotland and North East England, has also appointed Philip Biles to run an independent computer personnel services section of DML. He was previously manager of ATA Computer Recruitment.

Colin Barker has been appointed group general manager of the consumer electronics appliances group of IFT Europe. He was formerly with STC as director of marine and submarine systems.

Lifestyle Saga
by Dan

AS RETURNING OFFICER
FOR THIS CONSTITUENCY
I DECLARE THE VOTES
CAST WERE AS FOLLOWS...



...J. CALIGARI CHIPS
WITH EVERYTHING PARTY!
II, DID...



...BELLA BRIGANTORUM
(PUNK GIRL RULES OK
PARTY) II, DID...



...AND THAT BRITAIN
HAS DONE IT AGAIN!

Ritmeester
on IGL board

ICL has announced the appointment of Dr Joseph A. Ritmeester van de Kamp as a non-executive director on the holding company board. He is a former president of the Netherlands Institute of Directors, and is at present chairman of the supervisory boards of three Dutch companies. His career includes the position of general manager of IBM Nederland and managing director of KLM Royal Dutch Airlines.

John Shepherd has been appointed by Lowndes-Jones Computer Service as manager for the Ford Operating Cost Analysis System (Focas). He was previously a systems consultant with Ibcucon/AIC Management Consultants.

Alan Glaver and Harold Gilmour have been appointed as directors of Grand Metropolitan Systems. Glaver, who used to be the company's systems manager with Bide Eye Foods, has joined GMS as marketing and development director. Gilmour has become the consultancy director. He has held senior management service posts with the Grand Metropolitan group for several years.



Tony Whiteley has joined Quest Automation as UK sales manager. Prior to this appointment, he held a similar position with Plessey Microsystems. In his new post he will be responsible for the company's range of automated draughting equipment. Whiteley succeeds Ian Williamson, who now takes over responsibilities for Western Europe.

Graham Robinson has joined Shide Computer Services as a software consultant. He was formerly with SPL as a project leader, and with DEC as a software support specialist.

Peter Champion, formerly a hard-ware specialist/dept manager with Rediffon Computers, has been appointed manager of the technical information organisation.

DIARY

MAY 8
Vital BCS Harlow branch. Bye shop, Ganta Hill, 19.30. Contact Steve Robbins, Epping 72448.

MAY 8-9
IBM CUA Series/1 group. Holiday Inn, Leicester, 14.00.

Sent automatic synthesis of complex pattern descriptions in chess. Prof. D. Michie, Image Analysis group, Oxford University, Nuclear Physics Lecture Theatre, Keele Road, Oxford, 18.30.

AGM, BCS Preston branch. Royal Oak Hotel, Riley Green, Houghton, 18.30.

AGM, BCS Sussex branch. Micro-processor and electronic games. Wine and cheese. Brighton Polytechnic, Brighton, 18.30.

AGM followed by qualifications and entry to OP. G. Penney, BCS Manchester branch. Manchester business school, Manchester, 18.30.

AGM, BCS Teesside and district. Tealide Polytechnic, Middlesbrough, 18.00.

AGM, BCS Edinburgh branch. Mountbatten building of Heriot-Watt University, Grahamston, Edinburgh, 17.30.

AGM and chairman's lecture. ACS Belfast branch. Wellington Park Hotel, Belfast, 20.00.

MAY 8
Software aspects of system reliability and fault tolerance. Colloquium, IEE, Savoy Place, London WC2, 18.30.

MAY 10
Hardware aspects of system reliability and fault tolerance. Colloquium, IEE, Savoy Place, London WC2, 18.30.

The impact of computers on society, and AGM, BCS Kent branch. St George's Hotel, Chelmsford, 18.15.

AGM/Program and program language design to increase software reliability. Dr B. A. Wichusen. BCS S. Yorks branch. Huddersfield University of Sheffield, Sheffield, 18.15.

MAY 14
Presidential and social implications. W. Motley, IEE, Savoy Place, London WC2, 18.00.

MAY 18
Who is a project manager? - seminar. Association of Project Managers, Waldorf Hotel, London WC2, 10.00. Details APM, 01-799 3112.



Testing a Radford terminal at the company's new Bristol office is the Lady Mayors of Bristol. The Lord Mayor, Councillor C. Marrett, and the Lady Mayors officially opened the premises at a function which was also attended by representatives of several Radford users, including Revlon and British Aerospace.

New offices

The North East London based software house, Duncan Braman, has opened a new branch office at Pottery Bar, Hertfordshire. The company provides systems and programming support services for IBM users. Managing director is Roger Griffiths and the area manager for the Pottery Bar office is Martin Heale. The new address is Heale House, Mutton Lane, Pottery Bar, Tel. Pottery Bar 4481.

Steve Thompson, formerly director and general manager of Auto Diesels Braby, has become managing director of the company. Mike Bailey, formerly commercial manager, has been appointed to the board.

Paul Cumberland has become manager of OEM sales with Computer Machinery Company, after four years with Data Recording Equipment where he was manager of international accounts. He has also worked as an area salesman with Fack-Addo.

Roy Martin has become manager of applications software at Apple Computer. Before joining the company he was in market research with Hewlett-Packard.

Chris Beighton has been promoted to senior systems designer with Arbat (UK), based at the company's research and development centre in Ashford, Kent. He joined the company from Business Computers, where he was a project leader. In his new position he will be responsible for work on the development of Arbat's interactive multi-user system.

Alan Stone has been appointed as manager of site contracts with H. R. Piper, the engineering design company. Before joining the company he was employed in a similar position with another contract design company, and prior to this was in marketing with Rhode and Schwarz.

John Lilley has become marketing director for Systematic International. He was previously the UK marketing and economical research manager for Massey Ferguson UK.

OBITUARY

Tony Bush

TONY BUSH, project leader for the British Railways Board Computing Services, has died suddenly. He had worked for British Railways for 30 years and since 1967 had been in British Railways's data processing division based at Rail House, Crews. An associate of the IDPM, he had been a member of the project team which computerised the payment of British Rail accounts. At the time of his death he was in charge of the system maintenance team.

MAY 16-18
Fourth European Congress on Information Systems Networks, Commission of the European Communities, New Theatre, Luxembourg.

MAY 18
Computer aided software engineering, BCS CAD specialist group. Polytechnic of the South Bank, London, 14.00.

Serving the industry. R. Sulgen, P. Merrick, IOPM Central London branch, Pearl and Dean audio, Broadwick House, Broadwick Street, London W1, 18.00.

AGM, BCS specialist group for the disabled. Olivett Room, BCS HQ, 13 Menafelt Street, London W1, 18.30.

Computer's guide to word processors. ICCC, Cafe Royal, London W1, 09.30.

The impact of OLP regulations. ACS Information retrieval specialist group. Social Sciences building, Nottingham University, Nottingham, 14.30.

MAY 17
Role of large computers in the 1980s. Prof. French Summer, ACS London branch, Waldorf Hotel, London WC2, 18.00.

AGM and social evening. J. Woods, BCS Guildford branch, Clevedon Hotel, Guildford, 18.30.

Error estimation to pattern recognition. Dr J. Kitter, Image Analysis group, Oxford University, Nuclear Physics Lecture Theatre, Keele Road, Oxford, 18.30.

AGM, BCS Coventry branch. Venue to be announced, 18.30.

MAY 17-18
IBM CUA Local authorities group. County Hall, Durham, 14.00.

MAY 18
Microprocessors - the implications for general management. Southern operational research group. Henley, Administrative Staff College, Henley, Details from Margaret George, 0436 166 45.

AGM followed by guest speaker and buffet. BCS Hampshire branch. The Pottery Heron Motel, Ampfield, 19.00.

Carton backs
parachute
championship

THE national championships of the British Parachute Association are being sponsored by Carton Industries, who are usually occupied with packaging for the electronics industry. The championships will be held at Netheravon Airfield near Salisbury, from June 14-24.

Customers and friends of Carton are invited to the company's caravan which will be on the site throughout the championships. For details of the jumping and latest weather conditions ring 09807 201 ext 144.

ADDS president
appointed

Robert Degan has been named as president of ADDS. He has served as executive vice-president for the company for nearly two years, and has also been nominated to the board of directors.

Philippe Lacamp has become a director of Alders, a subsidiary of Alders department stores. He is head of systems for Alders department stores, which is a division of the UDS group.

Alastair Hamilton, who has spent four years as a consultant with John Hoskyns, has been appointed as group data processing manager for Heron. His career has also included the position of computer operations manager with English Electric and data processing manager with International Harvester.

Greg Peck has rejoined Harris Systems as a systems engineer, based at the company's new premises at the University of Southampton. He was formerly teleprocessing systems engineer with SIFK UK.

T. Bruce McCrirkick has become vice-president of Sert, the society of electronic and radio technicians. He is director of engineering at the BBC.

Ann Tipton has been appointed vice-president of marketing at Advanced Computer Techniques in New York. She was until recently a programmer and is succeeded by Ellen Klatzer, who joins ACT from GEC where she was Western regional manager for the company's information services division.

Brian Tytherleigh, managing director of ADP Network Services and president of ADPNS International, has become senior vice-president of ADP.

Ronald Blonkney has become vice-president of domestic marketing of Documentation Incorporated. He was previously national sales manager.

NEWS IN BRIEF

Barriers to
sharing

A LOOK at the barriers that could slow the effective sharing of computer technology between nations, forms the major part of a talk to be given by Herb Grosch at a British Computer Society specialist group meeting on May 8 at City University, starting at 6pm.

Those interested should turn up at the City University, Senate Room, 5th floor, on May 8 or contact the BCS Specialist Group for Developing Countries, 17 Woodgrange Avenue, London W5.

Replace

BOOK publisher Hodder and Stoughton is to replace its ICL 1901T with an ICL 2950 which will handle all order processing, sales and stock applications, management report production and a subscription system for its medical journal, The Lancet.

VDU addition

FOREIGN character sets are switch selectable as a standard feature on the Regent 20 dumb VDU now available from Terminal Display Systems of Blackburn. The Regent 20 is an addition to the family of VDUs built in the US by Applied Digital Data Systems that TDS sells in the UK.

Conference

THE Fourth International Conference on Computing in the Humanities is to be held at Dartmouth College, New Hampshire, US, from August 19 to 22. It is sponsored by the Association for Literary and Linguistic Computing.

‘We were a bit terrified all the way through’ says first UK user to convert from DOS to MVS

WITH stories circulating that IBM is planning to phase out its OS/VS1 operating system, existing DOS users are confronted with the prospect of converting their systems to run under MVS in one go. The first company in the UK to take this major step was Overseas Containers Ltd, whose MVS system went completely live in February.

At the time the decision was taken, in early 1977, IBM's plans for OS/VS1 had not become apparent. The move stemmed from the company's wish to expand its teleprocessing network.

This network was designed to allow OCL customers to book, via regional offices throughout the UK and on the Continent, containers or parts of containers that were to be loaded on ships. The IBM 3270 terminals at the offices captured the data and then transmitted it for batch processing twice a day on the computer, a two Megabyte 370/158. The terminals could also be used for a limited range of online inquiries.

The plan was to enhance this network so as to permit online updating of the container file as well as more extensive enquiry facilities. This necessitated the acquisition of more powerful hardware, and the choice lay between a bigger IBM mainframe (either a 188 or the then newly announced 3033), a mainframe from another manufacturer, or a dual

processor system. For a variety of reasons, the choice eventually fell upon a five Megabyte 158-3 MP, and it was this decision which necessitated the conversion to MVS. OCL was not that disturbed by the prospect, as it was anticipating converting to OS in any case.

What this all added up to was three conversions going on at the same time. On the hardware front, there was the change of processor, and also a change from 100 Megabyte 3330 disc drives to 317 Megabyte 3350 drives, plus a switch to 6,250 bpi tape drives. Then in software terms, a system using DOS under VM and CMS was being changed to a system using MVS TSO. In addition the company was switching from ISAM to VSAM file organisation systems. And while all this was going on, the systems programming team in the background was working on the new teleprocessing network.

And even that was not all. "While we were in the process of conversion," says OCL DP manager Brian Gilham, "we discovered a fourth area. It's a bit vague, but I'd class it generally as environment, covering things like security, back-up, passwords, JCL and so on. It led to a nice clean-up of standards generally."

With naturally enough, no in-house experience of a DOS to MVS conversion, and indeed very little experience of OS among the installation's 250 programming staff, it was an obvious move to get some professional help.

Faced with a choice of independent consultants or IBM, the company chose IBM.

The manufacturer in the end provided quite a lot of help, ranging from initial planning, the planning of the new software generation, and guidance in the environmental aspects, all of which was free, to seconding systems engineers to help with the actual conversion, which was charged for.

IBM's first move was a planning exercise, which broke down the existing systems into a number of modules and calculated with reference to previous experience the resources necessary to go through the process of studying the existing documentation, changing the programs, testing them, and then re-documenting. The answer which emerged, 23 man-years,

turned out to be very close to the actual figure.

To find these 23 man-years meant using contract programmers in a big way. In fact the initial plan was to rely entirely on outside help, but OCL eventually came to the conclusion that it needed some in-house in-depth knowledge of the system, and so used a number of internal staff as well.

The IBM estimate formed the basis for OCL's own planning, and was used as input to the company's network planning program. The initial output was a deadline of September 1979, but this was unsatisfactory, mainly because the throughput had to be there before that date for testing of the new TP network.

Accordingly more resources were allocated, and a revised deadline of February 1979 arrived.

One change of mind that did occur midway concerned the ISAM to VSAM conversion. This was originally planned in two stages from ISAM DOS to VSAM DOS 3330, and then to VSAM MVS 3350. It was found, however, that this was taking up too much system programming time, and so the whole job was done in one go.

For the basic generation of the MVS system, and also for the conversion and testing of the applications programs, OCL made use of computing facilities at IBM's Croydon site. This involved a utility called

RSCS (Remote Spooling Communications Subsystem), which allowed the company to key in program changes via VDUs on its own premises, shoot them down the line to Croydon, and get the results back the same way.

This process carried on for about six months. At the end of that time, in mid-1978, the new hardware arrived, and at that stage the work at Croydon was brought back and the rest of the conversion done on the premises.

By November, OCL was ready for a pilot live run on one system, which continued for six weeks. Then there was a period of parallel running, involving the cut-over of all the live files during the course of a weekend. The system's users were not involved in this process; all the checking was done by the computer staff.

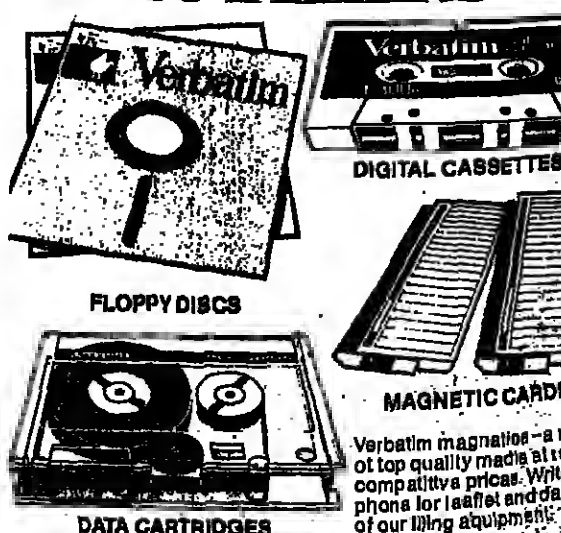
Gilham summarised his retrospective view of the whole exercise as "a mine of a slog but exciting. It wasn't like going through a minefield. We were a bit terrified all the way through, though — at the back of our minds was always this thought of having to do the cut-over all at once. It seemed a bit like stepping off the plank."

And the cost? Excluding the hardware, the resources for putting it in, and any increase in staff costs, OCL reckons it came to about quarter of a million pounds.

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CW 3/79

In-System Emulator enhances Starplex

THE In-System Emulator, ISE, introduced by National Semiconductor at the Hannover Fair two weeks ago (CW, April 26) considerably extends the power of its Starplex microcomputer development system, extending the facilities offered by in-circuit emulation techniques to cover work with different microprocessors, and two micro-targeted systems developments simultaneously.

It is the major component in an enhanced version of the Starplex system that also includes a new 132 column, 120 chps impact printer.

National claims that the major benefit of using the ISE system in a Starplex configuration is increased performance. It takes the basic approach of in-circuit emulation — actually running the target system hardware and software under the control of the development system — a stage further, allowing real time emulation.

It also adds the advantage of being able to emulate two microprocessor systems simultaneously.

The ISE unit is equipped with its own 32K bytes of memory, plus a CPU and control firmware, and can run the Starplex cross-assemblers for the 8080, 8048/49/50 and 8070 microprocessors. Emulation of target systems is carried out at full application speed.

It is equipped with 32 breakpoint registers and 128, 48-bit wide cells of program memory. Each breakpoint can be masked for "don't care" conditions, and set for desired combinations of address and status from the ISE and the target device.

Nascom gets further into OEM with updated kit

THE introduction by Nascom Microcomputers of the upgraded Nascom 2 computer kit (CW, April 26) moves the company far more strongly into the area of the industrial and commercial OEM systems builder. This has been a conscious decision by the company, following the somewhat

unexpected success of the Nascom 1 kit in this market.

With, according to marketing director Kerr Horland, some 70% of Nascom's European business for the existing Nascom 1 coming from the OEM sector, this addition to the product range is an obvious complement to the company's introduction of sys-

tems building equipment, such as chassis systems (CW, December 21/28, 1978).

Horland states that Nascom is moving more and more into the OEM business, even to the extent of acting as a design consultancy for customers wishing to use standard Nascom parts.

The new Nascom 2 retains the company's allegiance to the Mostek Z80 microprocessor, though it uses the Z80A version which can be run at 4MHz. This offers the potential of a 70% improvement in processor throughput. It employs an expanded, 57-key keyboard that offers several control and graphics functions over the original, and has the standard Nascom interfaces for audio cassette storage, teletype-writer and video monitor or TV.

Additional interfacing is provided by the inclusion of an uncommitted parallel I/O chip giving a total of 16 programmable I/O lines, addressable as 2x8-bit ports.

The new version is also bus-compatible with the existing Nasbus structure, and can therefore be used directly with the expansion systems available with the Nascom 1.

Its major advantage over the earlier model is in software and memory. In addition to a new 2K byte monitor, Nascom 2 is equipped with 8K bytes of user read/write memory, plus a socket for a 64-bit ROM, mask-programmed for a version of the Microsoft 8K byte Basic Interpreter. According to Nascom, the ROM-based on Mostek's MK39000 part — is due to be delivered in July.

Something of an "industry standard", the Microsoft Basic has been marginally modified so that it can be run under all

Nascom monitor software. It can therefore be used with the Nascom 1 as well as the new version.

The new monitor software, known as Nas-Sys 1, considerably extends the capabilities of the Nascom operating system. It allows full screen editing, for example, plus full cursor control. In addition, the cursor is now non-destructive, so it does not erase a character on the screen.

Its keyboard control will support full ASCII upper and lower case character codes.

International forum will discuss the next five years for the industry

ALTHOUGH conferences on the microprocessor are becoming the high growth business of the year, they still provide an important forum for discussion of the application and effect of the device. This month, London plays host to one of the most ambitious, a three-day event organised by Infotech on Microelectronics and Data Processing — the Next Five Years.

To be held at the Cavendish Centre, from May 21 to 23, it has been organised as a direct response to discussions with European semiconductor and computer manufacturers, who have felt a growing need for such a forum.

Under the chairmanship of Colin Crook, managing director of Rank Precision Industries, and former group operations manager for Motorola Semiconductor, the conference will attempt to cover the majority of

aspects where microelectronics and the microprocessor will affect the development of data processing techniques.

A total of 13 papers will be presented, with speakers ranging from Alex d'Agapevff of AF, Gordon Haley of ICL and Frank Arnold of Nixdorf from the computer industry, through to Robert Helkes of National Semiconductor, Dean Toombs of Texas Instruments and Tomihito Matsumura of Nippon Electric, from the microelectronics industry.

Other speakers will include consultants Malcolm Peltu and Ian Mackintosh.

As well as covering the basic challenge of microelectronics on data processing, the conference aims to explore such topics as the problems of interpreting the future needs of computer architects; the cost and technology trends of microelectronics in small systems and peripherals; how the micro will change the software business, if at all; the total information technology question of the convergence of computing, telecommunications and office products; and the role of

government in developing microelectronics industry and skills.

On the final day, the conference will be rounded off by a panel session, in which the speakers will be joined by Derek Barber of the National Physical Laboratory and Micro News editor Martin Banks.

Further information can be obtained from Infotech at Nicholson House, Maidenhead, Berks.

Packaged LSI-11

A PACKAGED version of Digital Equipment's LSI-11 microcomputer has been put together by DI-AM Data Systems of Stockport. Known as the Eleven-Pac, it offers an 8-slot backplane in a 5.25 inch chassis that can be used to expand the system to full LSI-11 capabilities. Equipped in its standard form with power supply and 32K bytes of RAM, it also has available several optional aids. Among these are a high speed analogue to digital converter, capable of throughput rates up to 100 kHz.

Expansion at Isher-Wood leads to restructuring

ISHER-WOODS, the Luton-based personal computer store, is expanding its operations, and is changing its name to reflect the changes.

It is understood that the full title of the company is to be changed to Isher-Wood Computer Systems, and that several new divisions are to be set up under this new holding company.

The personal computing efforts will now be handled by a division called Isher-Wood Personal Computer Systems, while developments in other market areas for small systems and equipment, particularly software, will be handled by a division called Isher-Wood Commercial and Professional Systems, and industrial control sys-

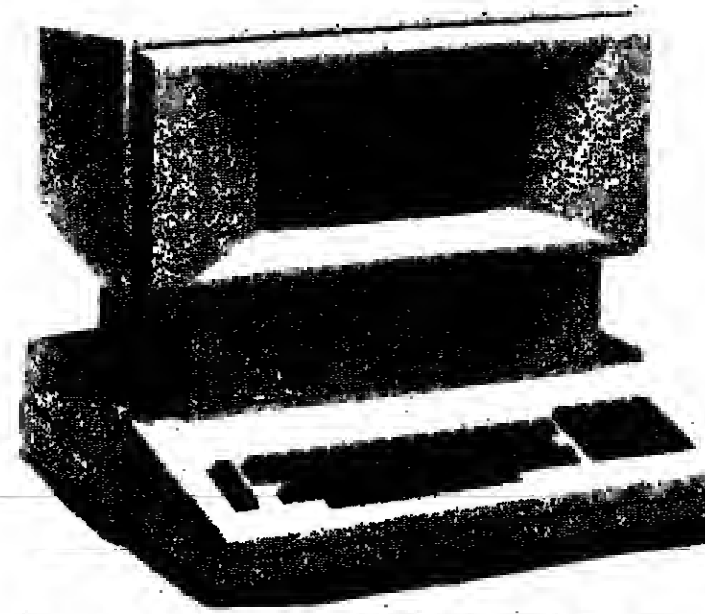
tems, will be handled by two new divisions.

These will be the Management Services Division, which will be offering packages aimed at reducing management workloads, such as Payroll and Human Resources, and the Industrial based critical path analysis packages, and the Industrial Micro-Systems Division. This will probably be headed by an ex-European director of a US minicomputer manufacturer.

Isher-Wood director Robin Wood could not confirm details of the reorganisation. He did, however, say that the company will be expanding its operations to include the development of commercial and professional systems software developed for the Commodore machine.

By Martin Banks

Sharp competitor for Commodore



GEC in the UK will be slowed to build the new Randal 8000 desk top computer, shown above, under licence from GEC's new US subsidiary, A.S. Dick, commits itself to buying at least 911 million worth of the desk top machine for sale to end users in the US (CW, April 28).

The Randal 8000 costs about £12,000 in the US and can run the same Data General Nova compatible applications software that the bigger Randal machines support. Like the bigger Randal systems it is programmable in Business Basic.

The 8000 comes with a 2,000 character display, two mini-floppy disc drives with a total capacity of 400K bytes and between 84K and 128K of RAM. It can interface with a separate printer.

Randal seeks agents for Nova emulator

APPLICATIONS software written for Data General Nova machines can be run on the family of commercial systems from Randal Data Systems of Torrance, California, a firm which is currently seeking European distributors.

The Randal machines are configured around a 16-bit processor constructed from the AMD 2903 bit slice chip family and are microprogrammed to emulate the Data General Nova. Randal itself has developed the systems software, which includes Business Basic and a disc operating system which can handle up to 10 VDUs.

The Randal systems are sold in the US through 80 distributors and compete directly with

the systems manufactured by firms like Basic/Four and Qantel. The Randal 100 and 200 are multi-terminal systems with cartridge disc storage. A desk top machine, the Randal 500, has just been added to the Randal family at the bottom end.

Randal already has a distributor in the Netherlands, the former Cincinnati Millicron agent, CIML, and the US firm's international marketing manager, Orlando Tonnin, will be talking to prospective distributors in other European countries in May and June.

In addition Randal will be demonstrating a system at two US Trade Centre shows — in Paris from June 5 to 8 and in Milan from June 19 to 22.

Codex-CCI agreement

THE unnamed suitor for Computer Communications Inc. of Torrance, California (CW, February 22), turns out to have been Codex Corp, the Motorola-owned company specialising in communications equipment.

Agreement has been reached between CCI and Codex under which the latter will buy at least \$25 million of CCI communications processors over the next four years for distribution outside the US.

Codex will also pay CCI \$2.1 million in licensing fees, and receive warrants entitling it to

buy up to 800,000 shares in CCI in 1982; if no other new shares are issued, this would give Codex about 18.5% of CCI. Codex and CCI will collaborate on development of new communications products for sale by both companies.

CSA representative

THE author of the article on software rationalisation, Michael Pickett (CW, April 4), represents the Computing Services Association on the Department of Industry team which is reviewing Steelmin languages.

Data General adds to its CS range

ADDING to its Commercial System family near the bottom end, Data General has introduced the CS/30, a configuration that comes with up to three terminals, 20 Megabytes on disc and interactive Cobol for less than £20,000.

At the same time Data General has announced additional features for the CS family's interactive Cobol Operating System, ICOS. They include an interactive screen formatter called Screen, which is intended to save programming time by automatically generating code, and Inquire, a facility which enables the user to browse through Indexed-Sequential Access Method, ISAM, files and update individual records.

Another new ICOS utility is Collapse, which enables the user to condense ISAM index levels for more efficient file retrieval. Collapse complements the existing File Analyser utility, which determines the packing density of files at different levels.

Like the single terminal CS/

20, the CS/30 is configured around the Data General Micronova microcomputer. The CS/30 uses the MP/100 board, introduced earlier this year, which incorporates the enhanced MN802 Micronova chip (CW, March 8).

Further up the CS line the CS/40 machines are based on the Data General Nova 3 minicomputer, and can support up to nine active terminals. The three smaller models of the five in the CS/40 range can now be supplied with up to four 20 Megabyte cartridge disc units,

while the disc capacity on the biggest CS/40s can be expanded to 800 Megabytes.

The CS/80 machines at the top end of the CS family are based on the Data General Eclipse processor and can support up to 12 active terminals. The S/130 instruction set lacks the commercial instructions that the basic processing capabilities of the bigger C/150 and C/350 business systems. Like the smaller CS systems the CS/60 machines run under ICOS, while the C/150 and C/350 run under AOS.

£35,000 innovation contest

ENTRIES are now being received for the 1979 TDC innovation award, the competition for companies based on new technology. Organised by Technical Development Capital, the award is presented annually for the best business plan which is based on a technological innovation. This year prize-money of £35,000 is being offered.


TDC provides funds for entrepreneurs to help them create or expand businesses which are based on technological innovation, encouraging individuals and small businesses with the necessary expertise. Entries for the award must be received before July 2. Details from Sue Mallett, TDC, 91 Waterloo Road, London, SE1. Tel: 01-928 7822.

Mail slot 'deletion' on request

A SCHEME to enable members of the public to have themselves removed from commercial mailing lists simply on request is being drawn up by the British Direct Marketing Association. Similar schemes, operated voluntarily by trade associations, exist already in the US, and in West Germany.

Announcing this, the chairman of the BDMA, Denis Jarrett, said that the proposed Data Protection legislation regarding direct marketing was "expensive and utterly unnecessary". The extra costs involved posed a serious threat to the future of direct marketing, and to the Post Office which stood to lose revenue because of increased prices to the public.

John Abram of American Express, the chairman of the association's List Committee which has been working on the plans, said they would also help people get onto lists if they wished. "They have had such schemes for years in the States," he said, "and now more people apply to get on lists than to be taken off."



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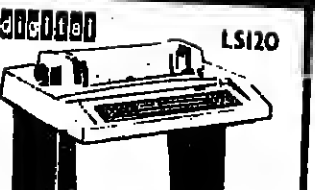

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US court bans transfer of savings

CONFUSION is growing over the future for computerised banking systems in the US following a court ruling that savings and loan institutions (the equivalent of building societies) must stop using remote cash terminals.

The US Court of Appeals in Washington also laid down that banks must not automatically transfer funds from deposit accounts to current accounts when overdrawing takes place, and that "credit unions" must not allow their customers to write share drafts which are in effect cheques.

The federal banking laws in question forbid SPL institutions from providing cheque services, which the commercial bankers' trade association, plaintiffs in the suit, had claimed they were doing by providing cash dispensers.

The law also forbids commercial banks from paying interest on current accounts. The court ruled that automatic transfers from interest-bearing deposit accounts made them, in effect, current accounts.

The court overturned the earlier decision of the Federal Reserve Board to allow these practices, but said that Congress should make up its mind as to what distinctions it wants between the different types of banks.

Therefore the court's decision is not to take effect until January 1, 1980, in order to give time for legislation.

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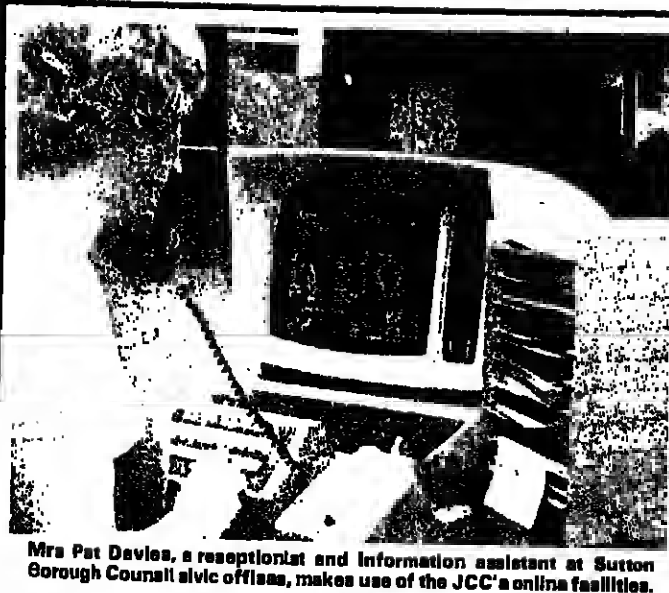
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Mrs Pat Davies, a receptionist and information assistant at Sutton Borough Council civic offices, makes use of the JCC's online facilities.

Boroughs make 4341 electronic office base

DURING 10th anniversary celebrations last week, the Kingston and Sutton Joint Computer Committee outlined its plans to install an IBM 4341 and use this as a base for introducing the "electronic office" concept into the two boroughs.

Presently using an IBM 370/14B, the JCC has decided to replace this with the IBM 4341 in 1980. It is one of the first local authorities in the UK to do so.

Word processing, facsimile transmission and archival retrieval of documents such as the minutes of committee meetings are applications being considered, and these will be introduced first by Kingston, which has tendered for a private digital telephone system to be installed by early 1981.

The three companies involved in the tender are IBM, ITC and Plessey.

NEWS IN BRIEF

Satellite goes into service

THE first satellite earth terminal in the new Post Office ground station at Madley, Herefordshire, has been put into service to provide a large capacity for telephone, telex and television traffic via the Indian Ocean Intelsat IVA.

Prime contractor in the £1 million contract was Marconi Communications Systems, and subcontractors included Mitsubishi Electric for the 32 metre antenna subsystem and Comtech in the US for low noise amplifiers.

Prices down

THE Digital Systems Division of Texas Instruments has cut prices on its range of impact printers. The model B10 receive only printer now costs £1,430, while the model B20 keyboard send-receive unit is £1,780.

Ruf takeover

COMMERCIAL minicomputers and VRCs built by CTM and Hohner in West Germany, and Hermes of Switzerland, are now being sold in the UK by Scan Data International of Haywards Heath, Sussex, which has taken over their former distributor, Ruf Computers UK. Scan Data already sells Texas Instruments and Allied Business Systems Multibus machines.

European outlet

BASF looks likely to be the European outlet for the IBM 3850 compatible mass storage system developed in Japan (CW, April 26). BASF already sells IBM compatible disc systems built by Nippon Peripherals, the firm owned jointly by two of the companies that developed the MSS Hitachi and Fujitsu.

Malta branch

FIRST overseas branch of CMC's International division has opened in Malta at 86 The Strand, Sliema, Malta, G.C. Tel. 010-356 511317. At present the new premises are being used as an engineering support depot for CMC installations in Libya.

File management

EMULATION of the IBM 3270 in single or multi-screen configurations is now available with the Reality Royale file management system from CMC. Files held on a remote IBM system and on the Reality Royale can both be accessed online simultaneously by the same VDU because the memory and display of the VDU are partitioned.

There is no dignity in useless jobs

MAY I revert to the Computerweekly article headed "Catch 22 for employers" (CW, March 22) and the predictable reactions of the Apex correspondents (Letters, April 5). I must say I found the article generous. If Apex is "enlightened" it is only by comparison with some other unions with even more restrictive attitudes. I see very little in the report that suggests anything but an underlying narrow parochialism.

The union says explicitly (para 3.31 of the report) that the first priority must be the protection of jobs. Taken in the context of the rest of the report, this evidently means that if particular employers are unable for market, financial, or other reasons, to increase output, diversify, or otherwise maintain a given level of employment, Apex, like their brother unions in the same general field, would be prepared to sabotage efforts to introduce the new technology.

When will they and their reactionary brothers recognise that jobs are a means to an end, the production of wealth? And that much of the wealth produced in the UK must be exchangeable abroad otherwise we shall starve?

There is no room for the over-manning inherent in the continued use of outdated methods. Given the existence of the new technology, a typist futilely typing repetitive text, or a compositor producing metal slugs would be just as productively employed digging ditches and filling them up again.

This is not to say that people displaced should be treated harshly, or that everybody is not entitled to the dignity of a job. But there is no dignity in useless jobs.

In this connection it is notable that only as an afterthought, in the very last paragraph of the report, does Apex make a passing reference to the jobs that need to be done in the public sector to which the potential

new wealth made possible by the new technology ought largely to be channelled.

Yet this and the related need for increased taxation (about which Apex is curiously coy) are crucial, and are the issues which an enlightened trade union movement ought surely to be addressing itself with a sense of urgent priority which is nowhere apparent.

Indeed, at this late stage, when the introduction of the new technology in America, Japan and West Germany is already well advanced, the best that Apex can record (para 3.21 of the report) is the "hope" of a trade union movement-wide strategy.

Meanwhile individual unions continue to deceive themselves that they can with impunity persist in the kind of parochial wrecking philosophy at present so rife.

In reality they have two options only: to accept the new technology without more ado; or face the inevitable consequences.

In terms of impoverishment and unemployment, of the progressive displacement of the UK from world markets by countries with less obstructive work forces.

The admirable sentiments expressed in para 3.26 of the Apex report suggest that unions might readily concur in this conclusion. Unfortunately much of the remainder of the report indicates otherwise.

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Converting to Cobol

ON our IBM 370, we have a number of PL/I programs that we wish to convert to Cobol and obviously we would like to use a software package to carry out this conversion.

I wonder if, through your columns, I might ask if anyone with knowledge of such a package would be kind enough to contact me.

J. V. ARTHURS
Education & Training Officer

Management Services,
The Boots Company,
Nottingham.

The Editor welcomes letters on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. All letters are liable to be cut at the discretion of the Editor, unless correspondents state that their letters may not be cut.

TUC plans for technology

From front page working week, working year and working lifetimes. In particular, it says, this should be seen as inter-related with setting job creation targets for enterprises.

The report admits the difficulty of accurately forecasting the net effects of microelectronics technology on employment, but does point to the underlying economic problem of low growth rates. It states that growth rates in excess of 3% will be needed to absorb current and future unemployment.

Major job losses have already been noted in the skilled manual trades of manufacturing industry, and are expected in office employment.

To help counter this, the report calls for wide-ranging developments in manpower policy, especially in education and training, and in a variety of enhanced employment services.

*Employment and Technology, TUC Interim Report, 50pp, 40p, published by TUC, Great Russell Street, London WC1.

Commodore endorses ACT package for the Pet

THE Petact business software package from ACT has become the first product from an outside supplier to be endorsed officially by Commodore for its Pet microcomputer.

Commodore is launching the endorsement scheme to cover approved hardware and software add-ons from other manufacturers.

The prime reason for the move is the rapid expansion in the market for microcomputer systems. Commodore itself sold some 3,800 Pets in the UK last year, and has already said that many this year to date. Worldwide, the company sold 50,000 units in 1978.

Endorsed products will be entitled to an "officially approved by Commodore" logo, and though the company will not become involved in the marketing of these products, many are expected to become available through the company's dealer network.

The Petact business package has been designed to run on the new 16K byte and 32K byte Pets.

Why are my professional abilities dispensable?

HAVING read the article by Jonathan Hamilton (CW, April 18), which discussed the problems surrounding the shortage of computer programmers etc, I felt compelled to offer some personal comment.

I am employed at a pseudo-government establishment and have been closely involved as a programmer and analyst in converting its administration activities from manual and mechanised systems to a reasonably sophisticated computerised network of operations. My 11 years have encompassed all areas of systems and programming activities from feasibility study to implementation stage. In fact, the characteristics of my

experiences seem to comprehensively satisfy the list of computer "craft" requirements.

However, my employer is now reluctantly constrained to offer me a sideways transfer into general administration in order to provide for my future career progression. My usefulness as a computer craft employee is endorsed by my employer's reluctance to transfer me out of a computer environment, particularly as it will result in the consequential problem of recruiting and training a suitable replacement.

It is patently clear to everyone involved that I am successful in the computer field, albeit within the limited confines of a pseudo-government department, and it is obvious that my life expectancy of usefulness within a computer environment has many years to expiry date!

How is it then, that my professional abilities, apparently so short in supply and very expensive to replace, can become dispensable in an extravagant act of expediency?

Jonathan Hamilton's comments are valid but the relevances and proficiency of training schemas will be nullified unless full utilisation of the skills pertinent to the resultant computer professionals is appropriately planned.

R. O. BUTT
Dilect, Oxon.

It is envisaged that without a new influx of equipment we will not be able to survive. I feel that an article outlining our plight, which is clearly not unique in the education field, would bring to the forefront a really major problem in computer training. Colleges such as ours are in a unique position, standing between schools and industry, and yet our resources are totally inadequate.

PETER MOTHERSOLE
Head of Computing
Charles Kaano Collage of
Further Education,
Leicester.

It is true that Infotech runs more computing conferences than any other company in the world, conferences as such account for only a small percentage of our total revenue.

CHRIS BUNYAN
Managing director,
Infotech International,
Maldenhead.

Finally, I would like to point out that Nicholas Enicknap's reference to Infotech as an "established conference company" is rather misleading. Although it

Detailed synopses for each session show that the organisers have taken the trouble to plan the programme.

2 Detailed biographies of speakers; look for relevant experience and status, and don't be fooled by the "big name" syndrome - a lot of conference speakers are "famous for being famous" and have very little to say that is new or interesting.

3 Well-designed and well-written publicity. Although this is not an infallible touchstone by any means, it is indicative of this amount of care and commitment of the conference organisers.

4 Price. It is generally this case that you get what you pay for. When you have made your decision and attended the con-

ference, don't be nervous about asking for your money back if the event doesn't live up to the expectations raised by the publicity.

Money back for bad conferences

THE article on conferences by Nicholas Enicknap (CW, April 12) gave readers some useful hints for distinguishing good conferences from bad ones (and there are, unfortunately, a lot of the latter). Perhaps I could mention a few more tail-tale signs that the prospective participant should look for when he evaluates the glowing prose of the conference publicity:

LETTERS

To: The Editor, Computer Weekly,
Dorset House, Stamford Street, London SE1 9LU

Systems older than the students

I WAS interested in Bernard Allen's comment on training (Op Spot, April 5). We have been teaching computing for some eight years and although the demand from industry and schools to expand on courses continues, we are reaching a time of crisis.

Local schools are demanding courses for their students which lead many of them into the computer industry as operators and programmers. Industry itself requires courses for its staff, especially now with the changes being made due to microtechnology.

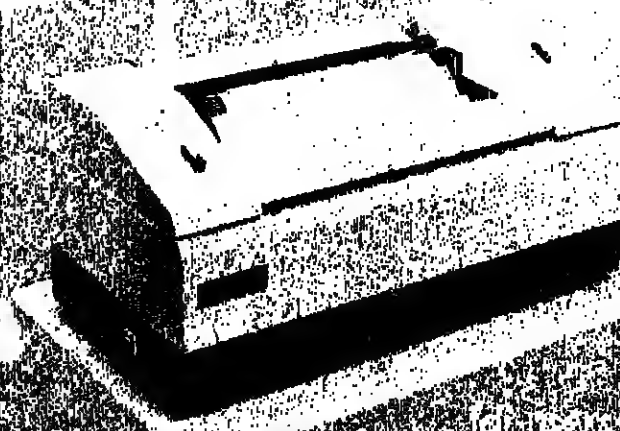
Our major problem is one of equipment. We have been using computers and DP equipment which were donated many years ago by local industry. We were then most grateful; but now these machines are failing every day.

The computers we have at present are a great deal older than the students. It is envisaged that without a new influx of equipment we will not be able to survive.

I feel that an article outlining our plight, which is clearly not unique in the education field, would bring to the forefront a really major problem in computer training. Colleges such as ours are in a unique position, standing between schools and industry, and yet our resources are totally inadequate.

PETER MOTHERSOLE
Head of Computing
Charles Kaano Collage of
Further Education,
Leicester.

The French Connection



At last you can connect Logabank printing into your IBM information display system and replace your 3240/40B printers. Having developed an interface, we set up a trial, and were delighted when it worked first time with no glitches.

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00-7362	64MB Storage Module Disc Drive	£5600
00-7364	128MB Storage Module Disc Drive	TBA
00-7366	256MB Storage Module	TBA
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00-7590	900 LPM Band Printer	£8800
00-7740	Superterm KSR Terminal 60 CPS OPT 'D'	£1265
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00-7431	Additional Deck for 7430	£3408
00-7400	Cabinet to house items mentioned above	£550

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00-7603	Paper Tape Station including 350 cps Reader, 70 cps Punch, PDP11 Interface	£3396
00-7604	Paper Tape Station including 700 cps Reader, 70 cps Punch PDP11 Interface	£3460
00-7660	300 cpm Punched Card Reader	£2550
00-7661	300 cpm Punch Hole/Optical Mark Sense Reader & PDP11 Interface	£3354
00-7632	EIA RS232-C Serial Interface for 7603/7604	£825
00-7612	Interface for 7660	£410

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00-7236	PM1116 16KW Plessey Core	£1100
00-7264	32KW Fungus Mos Memory	£1200
00-7265	64KW Fungus Mos Memory	£2000
00-7266	256KB PDP11/70 Memory including chassis power supplies etc.	£10150
00-7267	512KB PDP11/70 Memory including chassis power supplies etc.	£14540
00-7268	1 megabyte PDP11/70 Memory including chassis power supplies etc.	£24250
00-7217	M7850 Parity Module	£100
00-7820	Single Asynchronous Interface	£365
00-7821	Single Asynchronous Interface with clock	£385
00-7822	Dual Asynchronous Interface (2 discreet lines)	£485
00-7823	Dual Asynchronous Interface with full modem control	£535
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PART NO.	DESCRIPTION	PRICE
00-7900	Serial Asynchronous Interface switch and programme selectable UART parameters and baud rates (75 to 19,200), switch selectable address and vector, RS232 or 20ma, LS1-11 QBUS compatible, one dual height slot.	£160
00-7901	Dual DLV-11 Asynchronous Interfaces	£193
00-7902	General Purpose Parallel I/O Module: 16 bits input, 16 bits output; Interrupt control; LS1-11 QBUS compatible; one dual height slot.	£125
00-7903	DRV-11-B 16 bit parallel interface DMA.	£390
00-7904	16 KW Mos Memory	£845
00-7905	64K byte Mos Memory; 300 Nanosecond access, 450 nanosecond cycle; card extractors, LS1-11 QBUS compatible; one quad height slot.	£1050
00-7906	Cartridge Disc Controller: Interfaces most RK05 compatible disc drives to LS1-11. Includes cable; one quad slot.	£1650
00-7907	Floppy Disc Controller: LS1-11 for most 8 inch floppy disc drives. Uses Group Record Coding for storage of up to 650K bytes per disc side. Controls up to 4 drives.	£1080
00-7908	Dual floppy disc sub-system.	£2575
00-7909	Line Printer Controller: parallel interface for centronics, data 100, dataproducts and other line printers; includes 8 meter data cable; LS1-11 QBUS compatible; one dual height slot. Specify printer type.	£195
00-7911	Multiple serial Interface, 4 Asynchronous serial 1/F on one dual card one serial line may be used to drive parallel printer	£305

PART NO.	DESCRIPTION	PRICE
00-7912	Card cage and backplane; 8 quad (16 dual) height LS1-11 QBUS slots; wedged sockets for easy module insertion; 10.5 x 4.64 inches x 11.62 inches.	£250
00-7913	LS1-11 Microcomputer: 61,440 bytes RAM operator's console, line frequency clock, asynchronous serial I/O module, extended instruction set, floating point arithmetic EPROM sockets, QBUS terminator, 8 quad slot backplane and switching power supplies. Eleven extra dual slots.	£2647
00-7914	Terminator/Bootstrap Clock module; provides LS1-11 QBUS termination; power-up sequencing; front panel halt/enale switch and indicator; real-time clock; PROM sockets; one dual height slot.	£200

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PART NO.	DESCRIPTION	PRICE
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00-7810	BPO Protect Cable	£75
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Ernst Walther,
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PORTUGAL to be announced shortly.

00-7911-150

Union leader warns of a 'shop floor backlash' on jobs

THE unions are looking to government to create the right social environment to make it "financially and psychologically viable" for unions to release people and jobs to allow new technology to come in. That is the view of ASTMS research director Barrie Sherman.

He told the ICL Computer User Association's convention that although he believed the loss of jobs through the use of information technology might be reversed after about 20 to 30 years, he was sure many jobs were threatened and this could lead to a strong backlash directly from the shop floor.

Michael Bury, director of education, training and technology at the Confederation of British Industry, agreed that "we must exercise a due care and concern for those people whose working lives will be affected by technological changes."

But he warned that while "we must strike a reasonable balance

between ruthlessness on the one hand and timidity on the other, the latter seems to me at present to represent potentially the more real danger."

Both Sherman and Bury emphasised the importance that education would play in preparing people and industry for the future.

Sherman said he believed that children and adults would have to be trained to widen their options in a society where there might be a different balance between work and leisure and he hoped that new jobs would be created in areas, such as the health service, where technology could be applied to fulfil the needs of people.

Bury said that industry would do well to overstate requirements for skilled technological staff rather than to underestimate them.

While he welcomed the fact that the government had woken up to the need to create wide awareness in industry of the

application of microelectronics, he was not convinced that plans for one-day education sessions could produce the lasting effect needed.

"In our view, the best way of getting home the message is to enable people to see for themselves what is already being achieved in other firms, other industries and other countries," he said.

Although Sherman accepted that there were probably greater dangers in turning our backs on technology than in using it, he warned that historically major innovations such as the steam engine and electric motor had not led to a "smooth continuum of change" and had led in the 19th Century to untold misery and squalor. Between 1874 and 1895, he said, there had been such a major slump that emigration was the only way of avoiding major upheavals and he believed a similar period of uncertainty could occur over the next 20 years.

He believed the UK was in a uniquely optimistic position, however because, despite the slump in world trade, we had North Sea oil revenue which could be used to finance the social and economic environment which would cushion the shock of the job losses and de-skilling, which he believes will be an inevitable consequence of the introduction of technology.

Returning to a familiar ASTMS theme, he said that society needed to have a new attitude to the "work ethic" and to accept that, for many people, "leisure time" would necessarily outweigh time spent in traditional concepts of work. If finance was not found to create the right social environment, however, Sherman believed the only way of getting through the next 20 years would be through policies "implemented at bayonet point" to pacify the rising tide of discontent among the unemployed, particularly the young never-employed.



SHERMAN... "many jobs are threatened."

Tributes to George

ON the tenth anniversary of the launch of George 3, ICL users offered numerous unsolicited testimonials for the dear old 1900 George operating system. And 2900 DME, which enables George environments to run on the 2900 series, also received overwhelming praise.

ICL CUA chairman Jim Rothwell, however, warned that there had been a lowering of expectations of users on the 2900 series. On George, he said, users had become used to months of uninterrupted running whereas with VME/B there was talk in terms of the numbers of hours between failures and a VME/K user, Bob Hocke of Berle, said he would be happy if VME/K lived up to its expectation within two years.

"ICL has been lucky that its users have shown so much goodwill and patience with the development of VME/B," commented Rothwell. "We are going through the same learning curve with it as early George users went through and I would have hoped that ICL had learnt something from its previous experience."

Rothwell and Hocke both welcomed DME as a short-term aid, but stressed that users should never get the idea that it was a long-term solution. "DME is great but I bought our 2900 for VME/K," commented Hocke.

On the difficulties of developing VME/B and K, ICL reiterates that operating systems are complex entities and suggests that in a few years there will be the same user affection for these systems as developed for George 3 following the sorting out of early George development problems.

Key to program design

● From page 4

then includes the minimum number of data structures (including intermediate ones) needed so that each program which processes one set of data structures to give another set does so without having to resolve a structure clash (there are some specific exceptions, "sort" being the most obvious one).

The aim of structured programming is to make programs reflect the problem being solved and not the other way about. Since the solution to the problem is to build the bridge between input and output data structures, it is equivalent to say that the structures of programs should be based upon the structures of the data they process.

But we need some means of ensuring that input data structures — file structures if you like — in turn reflect the natural clustering of data in the real world. Relational design gives us just this.

How difficult is this design technique to introduce in practice? The approach which follows should not prove too traumatic even to the most reactionary of systems staff:

- When analysis has been completed and record layout sheets drawn up, check the layouts for Fourth Normal Form and revise if necessary. Each record layout should then be signed off as logically correct.
- Create implementable data structures for these record types using inter-file relationships as a guide. The resulting file or database structures or screen panels should then be signed off as implementable.
- Create sufficient data structures to avoid structure clashes within programs (with specific exceptions such as "sort"). The data structures together with processing requirements form a program specification which is then signed off as logically correct.
- Finally, turn the processing requirements first into structured programming pseudo-code and then into a program module structure (usually a hierarchy). The result is signed off as implementable.

There are many other approaches; some use reams of special forms for the different stages of system development; others use formal data structure analysis and tools such as data dictionaries.

1. Principles of Program Design; Academic Press (1975).



Fibre optics take over

FIBRE OPTICS data links are beginning to take over from conventional metal wires where data needs to be transmitted over long distances without being corrupted.

One big computer user which has already adopted the technology is the Grumman Aerospace Corp of Bethpage, Long Island, New York, whose fibre optic engineering specialist Jack Mooney, is seen (left) observing transmitted light through a filter at the open end of a fibre optic cable. The cable is being held by Ed Ayres, an electro-optical engineer with the Veltac Corp of West Boylston, Massachusetts.

Veltac has supplied Grumman with fibre optic equipment that now links Grumman's IBM 370 with an interactive graphics system located more than three kilometres away.

The cable used measures 0.625 inches in diameter and can carry up to four full-duplex channels.

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Further details from:

181, Information Studies Ltd., Regal House, Lower Road, Chorleywood, Rickmansworth, Herts. WD8 6LQ

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FINANCIAL NEWS ROUND-UP

Enter a Matchmaker...

ARIEL is improving the existing equities dealing service it provides to its 40 subscribers by adding a facility called Matchmaker involving a "discreet" file of large volumes of equities that subscribers want to buy or sell.

With the existing Ariel system the buying or selling wishes of each subscriber are broadcast to every other subscriber, an arrangement that can be a cause of embarrassment when a very large chunk of a particular stock is involved and the subscriber fails to find a buyer or seller.

Matchmaker will take over the Ariel network for about 10 minutes each day and will run on the Digital Equipment PDP-11/40 that acts as back-up to the 11/40 that runs the existing system. The identity of stocks on the Matchmaker file will be broadcast to subscribers and those who are interested can indicate their wishes to the system without other subscribers knowing who they are.

Most Ariel users are funds managers of major institutions who do not need the Stock Exchange for their activities.

Ariel aims to cover gilts dealing as well

ARIEL, the computer based stock dealing service that competes with the Stock Exchange, looks like extending its competition to cover dealings in gilt-edged stocks as well as equities. The Stock Exchange has already announced its own plans to computerise gilts dealing. The managing director of Ariel, Garry Arnott, told Computer Weekly that Ariel had not taken on gilts dealing until now because of the insistence by the Bank of England that Stock Exchange jobbers are essential for gilts trading.

The Bank's views are normally treated with respect by Ariel because the Ariel operation is owned by a group of merchant banks which have to maintain good relations with the Bank.

National Semiconductor sales reach record level this year

NATIONAL Semiconductor reports record sales for the 12 weeks ended March 4. The quarterly sales figures were \$185.3 million, which was a 49% increase over the same quarter in 1978. Before tax profit for the quarter was \$14.2 million and for the same quarter in 1978 \$9.4 million.

For the 40-week period ending March 79, the company's total sales were \$518.3 million compared with \$360.8 million for the same period in 1978. There has also been an increase in engineering and development expenditure from \$30.4 million to \$49.8 million for the 40-week periods.

Capital expenditure has doubled from the 1978 40-week period of \$27 million to \$54 million in the 79 period. The company forecasts continued sales growth for the next quarter.

KALAMAZOO revealed that a quarter of their profit before tax of £2.09 million for the six months ended February 2 was derived from the group's computer systems and services division. Group total sales for the six months were £12.09 million.

SCIENTIFIC Time Sharing Corp made operating losses of \$263,000 in its European operations during the 12 weeks ended February 28. During 1978 the company established a wholly owned subsidiary in West Germany and expanded the operations of its UK subsidiary.

Group sales for the quarter were \$4.3 million compared with \$3.5 million for the same quarter in 1978. Profit before tax for the two quarters was \$0.6 million in 1978 and \$0.4 million in 1978.

DATA Terminal Systems, a US electronic cash register manufacturer, had sales of \$19.6 million and profit after tax of \$4.2 million for the quarter ended January 31. Figures for the corresponding period last year were sales of \$13 million and profit after tax of \$2.4 million.

BROWN Boveri Kent's accounts for the year ended December 31,

show sales have increased from £88.85 million (1977) to £81.12 million. Profit before tax was £8.3 million and £7.4 million respectively.

RAYTHEON, the US parent company of Data Logic, announced profit after tax of \$43 million and sales of \$898 million, for the quarter ended April 1. The corresponding figures for the previous year were \$32.6 million and \$769.4 million.

CENTRONICS quarterly report for the period ended December 31 shows sales of \$32.4 million making a profit before tax of \$6.1 million. Comparable figures for the same quarter in 1977 were \$17.9 million and \$4.3 million.

DATA General Corp sales for the 12-week period ended March 17 were \$112.4 million, producing a profit after tax of \$12.2 million. Figures for the previous 12 weeks were \$105 million and \$11.7 million.

CONTROL Data's first quarters profits after tax were \$25 million compared with \$15.7 million in the first quarter of 78. The contributions to these profits earned from computer operations were \$1.8 million (1979) and \$4.4 million. Total sales for the two quarters were \$492.1 million (1979) and \$400.4 million.

FAIRCHILD Camera have forecast total sales to be more than \$1 billion by 1982. Sales in 1978 were \$550.4 million and in 1977 \$470.4 million. Semiconductor sales are expected to account for about half of future total sales. Semiconductor sales in 1978 were \$383.4 million and \$321.4 million in 1977.

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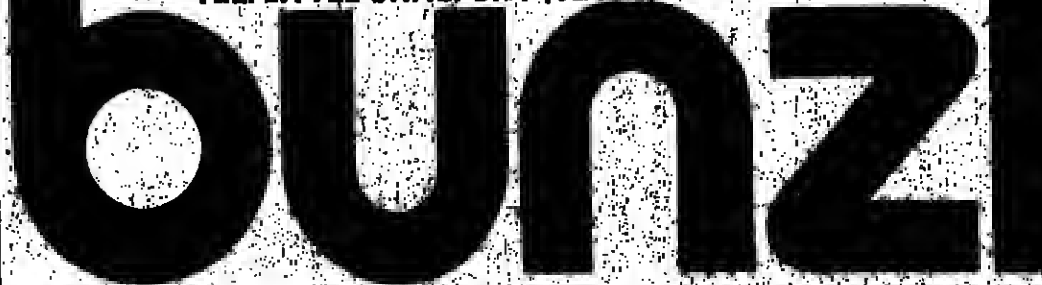
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Leap-frogging with IBM on minis holds no fears

BY forging strong but athletic links with OEM customers, and giving preferential treatment to none, Data General feels very comfortably placed to compete with IBM. So says Ray Piggott who, as managing director of Data General's UK subsidiary, heads the largest unit of the company outside the US.

"The IBM System 36 and the 4300 are too new for us to say what their impact will be on our business, but we have seen no business slowdown as a result of the IBM Series 1 minicomputer so far.

"The minicomputer manufacturers have carved out their own niche in the market, and IBM is trying to enter it. Series 1 has had no major impact on that market so far, but we know it will come one day. When it does we will be prepared for it.

"But the implication that minicomputer manufacturers are trembling at all the new IBM announcements is quite wrong. We were prepared for them. The number of pure IBM shops has diminished, because customers are more price-sensitive than hitherto.

In Piggott's view, the essential prerequisites to success include three key elements: good field engineering, software support, and compatibility through the range.

"OEMs are attracted by the compatibility throughout our range, and we do most of our business through OEMs", he said. "We also offer a very good and uniform discount

major strength. And our software is universally acceptable, not exclusive to Data General.

"I have to be careful about saying anything on forthcoming products, but there could well be something to improve programmer productivity on our horizon."

Interestingly, Piggott says that Digital Equipment is no longer Data General's main competitor; he names NCR, Burroughs, ICL, IBM, Prime, Texas Instruments and Honeywell's Level 8 mini as all featuring in different competitive bids.

To suggestions that the move into microelectronics was a mistake, he is adamant that it was an essential decision.

"The business is profitable, and Data General is fully committed to vertical integration of its business. We are not a semiconductor manufacturer but a producer of highly sophisticated computers where component quality is of vital importance. And we have just tripled the space in Sunnyvale devoted to semiconductor research and manufacture."

The UK company is bigger than any British-owned minicomputer company apart from Ferranti: in the year to September 30, 1978, it had sales of £14.1 million, on which it made a pre-tax profit of £951,000. Tax took £478,000, leaving a net profit of £473,000. The company employed 255 people in September but the figure will pass the 300 mark this year.

structure, which means that we are in better shape than many in the minicomputer business to compete with IBM."

The fact that IBM is competing for the first time on both price and technology does not worry him either.

"Data General is already established in the mini market, whereas IBM is new. We add a significant new Data General product every 15 days, and technological advance is a leap-frogging process: one day they move ahead of us, and then we move back into the lead."

The strong moves within IBM to offer software which is much more easy to use and is designed to enhance programmer productivity holds no fears for Data General either.

"The fact that we have an 8080 right through our CS range, from the Microvare-based CS/20 through the Nova-based CS/40 to the Eclipse processor in the CS/60 is a



Piggott

Washington steps up office automation plans

THE US Office of Administration services many of the functional requirements of the Executive Office of the President, one of the key arms of the government machine. It is currently making comprehensive plans to use both computers and office automation techniques to help in the administration of domestic policy-making in the States.

MARTIN BANKS went to Washington, to find out what is being planned.

DEMONSTRATIONS of both viewdata and the National Aeronautics and Space Administration's Digital Information Display System to staff in the Office of Administration of the US government are the most visible aspects so far of the move within the Administration towards much greater use of office automation.

By the end of this year it is hoped that the basis of a complete information system will be installed in the Office of Administration's home, next to the White House in Washington.

This basic configuration will comprise two host systems, one handling data processing and the other office automation. Specification documents for both have been with potential suppliers for some time, together with requests for proposals, and firm orders for the two systems are expected to be placed soon.

Once these orders have been made, the next phase will be the incorporation of communications hardware that will tie the two systems together in an integrated information processing and handling network.

The viewdata and DIDS demonstrations are part of an information technology evaluation project that is due to be completed by October. This will be followed by a report of the project findings.

Behind this activity is an appreciation by the Office of Administration of the need for more comprehensive and organised information systems to support the domestic policy-making process in the US. It was only during the last, Nixon/Ford Administration that computer facilities started to be used to assist the domestic policy-makers, but there was no full-time staff. Machine time was taken on other government-owned systems.

The systems that will eventually be installed are the centres of the new information system planned for the Office of Administration will be comprehensive. For example, the processing of the data processing "host" states that the system will have, in addition to a powerful computation capability, an English-like command structure, and what is termed a "state-of-the-art" file system.

The operating system should be designed to support a large community of non-programming users in an interactive environment, while at the same time supporting a wide selection of programming languages, such as Fortran, Cobol and PL/I, as well as database management systems

and applications development tools.

Projections given in the specifications for the growth in use of the systems within the Administration are interesting. In the first year of operation, the planned number of simultaneous users will be 60. By the fifth year of use, this number will have risen to 110.

They will have online access to 22 database files in the first year, and in the fifth year, the number is planned to rise to 262 files, with a total of 3,500 file transactions per day expected.

All these users would have access to the system through government-supplied terminals, with which the system would have to interface.

The "host" for the office automation system will be required to support an electronic mail facility, together with a document production and control. Among the most interesting factors specified for the system is a high degree of adaptability. This demands that a "user profile" should be maintained for each user on the system, which defines the way the system looks to the user, and the manner in which the system interacts with that user. In addition, each user should be able to modify the options available in his profile.

There will also be a provision for text editing in the system, taking input from a variety of peripherals, with output to printers, hard-copy terminals and video displays.

The electronic mail facility will be able to handle the preparation and distribution of mail, as well as message storing.

The next stage in the operation will be specifying the communications system needed. The current problems that of providing sufficient bandwidth, especially as the first application being considered is the electronic mail network within the Old Executive Office Building.

It appears that the favourite solution for the communications network at present is a fibre-optic based system, for not only does this offer sufficient bandwidth, but it also has the added advantage for a security-conscious organisation of not routing signals in the same way as hard-wired electrical cables do.

There will possibly be some shedding of staff when the systems are installed and running. For example, of the 137 people employed by the Office of Administration, 45 are involved solely in the creation and transportation of bits of paper. Electronic mail will probably change these numbers.

COURSES

THE Urwick Management Centre of Slough is holding a two-week course on advanced systems development from May 6-10. The course is designed for systems analysts with at least five years' experience. A three-day course, ICE Conditions of Contract, will be held from May 6-8-11, and is aimed at senior executives in construction, client companies, the professions and public authorities. Senior Management in the title of a three-week course for chief executives of small and medium-sized businesses, from May 14 to June 1, details from J. Swinson, Dagbliss House, Stoke Poges Lane, Slough, Bucks, Tel: Slough 34111.

Hoskyns Education is holding a series of courses in May. These include: Executive Management of Data Processing for senior users, from May 6-8, for Project Managers for action project managers, from May 11 to 16. Courses are designed for systems analysts, programmers and operators.

All courses are residential at the Hoskyns Education Centre in Bournemouth, with the exception of Operations Management, which will take place at the Royal Victoria Hotel, London from May 21 to 23. Details from J. Swinson, Dagbliss House, Stoke Poges Lane, Slough, Bucks, Tel: Slough 34111.

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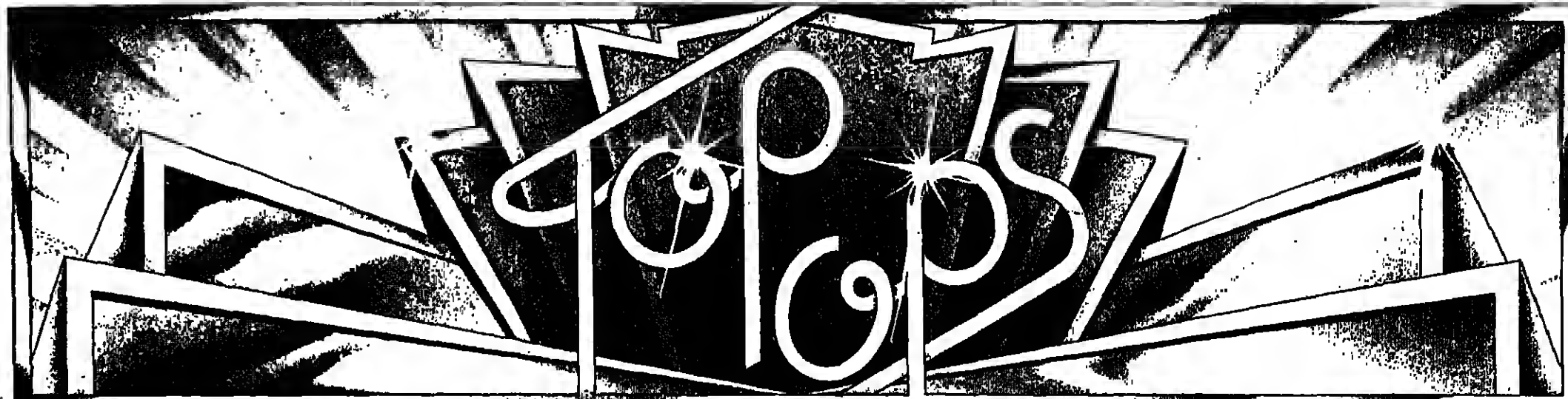
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You will be user oriented and open-minded enough to evolve the optimum solution to users' problems. Typically around 8 years' DP experience is sought, with half this time spent in systems analysis. Initial interviews will be held at our offices in London, when a full Job Specification will be available.

If you are in any doubt about your abilities, don't apply. However, if you can demonstrate to me why this post will be yours, call me, GEOFF MARSH, today on 01-499 4501, or send a comprehensive C.V. to the address below.

REF. RW 18/2

hutchinson-scoggins recruitment
47/48 New Bond Street (entrance in Maddox Street) London W1Y 0HE Telephone 01-499 4501

COMPUTER OFFICER PO1C

£6,798-£7,515

Including London Weighting

Brent uses a 1/2 MByte IBM 370/145 working under DOS/VSE jointly with the London Borough of Ealing. We are looking for a Computer Officer with an Accredited Computer Technology qualification who will be responsible for liaison between the Council's user Departments and the Principal Computer Officer at the Computer Centre to ensure the development and smooth running of Brent's computer operations both financial and non-financial. The current machine configuration includes 3340 and 3314 discs with both local and remote terminals. A Land and Property Database is being developed using Q11 and new Financial and Housing Management Systems are being implemented.

The Computer Officer will be required to advise top management upon computer matters and to implement and manage computer applications, including feasibility and cost benefit studies, of both the mainframe machines and Brent's Rediffon Saatchi Key-to-Disc Data Preparation system.

General relocation expenses available 35 hour week. Flexible Working Hours. Interest-free loans for annual rail season tickets.

Application forms and job description from the Administration Manager, Room 705, Brent House, High Road, Wembley, Middlesex, HA9 7TH, 11th May, 1979. Telephone: 01-803 0371 (24 hour Answering Service). Reference number F/43/JD must be quoted.

London Borough of
BRENT

VME/B COBOL

KENT

c £220 p.w.

01-262 2251

UNIVERSITY OF DUNDEE COMPUTING CENTRE

SHIFT LEADER

COMPUTER OPERATOR/ TRAINEE OPERATOR

A vacancy has occurred in the operating staff of the Computing Centre for which applications (from either sex) are invited.

The University has a large DEC-10 computer system which provides terminal and batch processing facilities to the University.

The successful applicant will join the operating staff, preferably at the shift leader level, but consideration will be given to others wishing to join at a lower grade.

Applicants must be prepared to work on a two-shift system (Monday to Friday) for which a shift allowance is paid. Salary scales inclusive of shift allowance are as follows:

Shift leader: £2815 to £3523

Operator: £2085 to £2815

Trainee Operator: £1615 to £2085

Application forms may be obtained from the Establishment Office, The University, Dundee DO1 4HN, and should be returned by May 10th, 1979.

PLEASE QUOTE REFERENCE EST/126/79

CONTRACT PROGRAMMERS

£200-£240

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NZ \$30,000

Yet another outstanding year of achievement has been completed by ICL New Zealand. Finances were up 10%, profits have broken all previous records, and we've a wide, established, growing customer base.

We are looking for computer professionals in the following areas:

- Sales
- Project Management
- Support Management
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- Marketing
- Training
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All positions offer excellent salaries, generous relocation expenses and considerable scope for career progression. We've got the best in-house Training Division in New Zealand because we believe in utilising fully our staff's potential. It's a land of opportunity. Find out more about a sunshine

career. Peter Mc Laren, Personnel Services Manager of ICL New Zealand, is in the United Kingdom for three weeks. Ring him on 01-283 2222 ext 2110, or write to Peter Mc Laren, ICL Building, House, South Poleway, London SW6 4XK. Please quote reference CWT 182.

International Computers

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BOROUGH OF RUHLAND PROGRAMMER

Applications are invited for this post in the Borough Treasurer's Department, at Rhyol. ICL 2503 installation. Salary AF Grade 3 (maximum £4,148). Superannuable post. Full removal expenses will be paid.

Applicants should have a working knowledge of ICL Cobol and preference will be given to applicants with local government experience. Opportunity to gain experience of systems analysis. Applications, together with the names and addresses of two referees, must reach me by 14th May, 1979. They will not be acknowledged prior to the selection of candidates for interview. Conveying will disqualify and candidates related to any Council member or senior officer must not indicate.

R. STEWART JONES
Borough Secretary

Council Offices
St. Asaph
Chesh.

SALES EXECUTIVES

The natural expansion of an established international company has created three first-class vacancies which cover large industrial/commercial areas of the U.K. Basic knowledge of Sales Promotion would be an advantage, but the proven ability to negotiate with management for a portion of their training budget, coupled with a proven sales record, are essential prerequisites for these positions. Appointments: Age 28-40 preferred. Salary, commission, company car, and benefits package which includes 4 weeks holiday, pension scheme. Applicants should live in the Bristol, Birmingham or Leeds area. Please apply to:

V. Reave, Sales Manager
MYRIAD TRAINING LTD.
Tudor House, 131 Upper Richmond Road
Putney SW15 2TR. 01-283 1197

MYRIAD

SALES SUCCESS

The front-line sales role is one of the most demanding in any business, and in order to achieve success the sales executive needs not only his own commitment and drive, but also the back-up of thorough product orientation and comprehensive technical and administrative support. Our client is the market leader in its field. In itself this fact is a testimony not only to the unrivalled range of data-communications products which they offer, but also to the success of the sales force and the sales support effort, which leaves front-line sales personnel free to carry out their primary responsibility — opening up new accounts and developing existing clients.

To cope with the ever increasing demand for its products the company is currently expanding its sales team and is able to offer a number of exceptional opportunities to experienced salesmen in territories throughout the South of England.

FIELD SALES: The ideal candidate will have previous experience of selling data communications kit. However, a successful track record in any computer or electronics related field will also be relevant. A substantial basic salary is offered plus a bonus, generous commission scheme and company car. Commission will be guaranteed initially and the first year quota earnings are circa £8,000 which one may confidently expect to exceed.

In a major organisation where sales, in real terms, have developed rapidly in recent years the persons appointed can look forward to a rewarding future where career opportunities are unlimited.

Ref: SW2/0305

SYSTEMS MANAGER

C. LONDON UP TO £9,500

This is a first-class opportunity for an experienced Project Leader or Manager of a small systems team now seeking to advance their career in a position offering greater management challenge and more extensive and rapid career progression within an extremely professional business environment.

The person appointed will manage a highly competent and ambitious systems team currently involved in the development of a variety of integrated financial systems. Using not only Database and communications techniques the systems team's activities also encompass specialist hardware and software applications solutions to user problems where appropriate.

Applicants should be able to demonstrate a progressive and successful record of systems implementation ideally using medium mainframe ICL equipment or alternatively any small machine systems. They should have the ability to manage an energetic and dynamic team in a highly user oriented organisation.

Based in Central London, easily accessible from the Home Counties the person appointed will be offered an excellent commencing salary and conditions of employment.

Ref: E1/0305

SENIOR ANALYST

C. LONDON c £7,500

This position presents a rare opportunity for an experienced analyst seeking total involvement in a major systems development project from inception to successful implementation.

Initially assisting with a comprehensive review revolving around the Company's Stock Control requirements the person appointed will play a significant part in the preparation of a design report for a new integrated systems solution to encompass Stock Control, Ordering Information, Picking-Lists, Deliveries and possibly Transport Scheduling for the groups country-wide network of depots. The proposed system will utilise large in-house main-frame machines linked to remote offices by a communications network. The use of mini computers for local processing will be considered in the initial investigation.

The system will be designed to cater for projected requirements well into the 1980's and provide sophisticated management information and positive Stock Control for sales which currently exceed £1 million per day.

Applicants should possess sound analysis experience with particular relevance in the area of Stock Control. An excellent commencing salary and career move in further enhanced by first-class working conditions and benefits package which includes 4 weeks holiday, pension scheme, restaurant facilities and season ticket loan.

Ref: SE1/0305

SYSTEMS FOR THE 80's 12 months MACRO-11

READING to £6300

PROGRAMMER/ANALYSTS: If you have been working in the computer industry for two years and have spent twelve months using MACRO-11 then our client can offer you a number of outstanding opportunities to pursue a really rewarding career.

The company is market leader within a rapidly advancing sector of the data processing industry, namely Data Communications. The next generation of total communications systems will be fully controlled by mini's and micro-processors, representing a significant step forward in terms of capability, reliability and flexibility. The development of these systems is now due to commence and vacancies exist for persons who wish to work in the forefront of computer technology.

Previous experience of communications systems and protocols is not necessary since the company will provide comprehensive training. What is required is the ability to absorb new concepts and a willingness to make a real contribution to the progress of the industry. If, therefore, you can offer a sound background and are seeking complete involvement in software design and development, we would like to hear from you.

Ref: SW1/0305

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 £260 P.W.
 £250+
 £250 P.W.

£6,500 NEG

Expendig commercial body based in the City seek programmers with minimum 6 MONTHS experience of ICL COBOL to move on to entry level. Company retain ICL 1800's and DEC POP 11's WITH entry level Company in their computers. The successful candidate APPROX. £4M awarded in a dual role - working on both ICL and POP will find him/herself in a dual role - working on both ICL and POP machines and training will be given where necessary

- Large number of brand new projects
- Xmas bonus
- Substantial pension

REF. 7008

to £7,000 + MORTGAGE

DRAW NEW INSTALLATION: Our client, a subsidiary of major international banking group is seeking several programmers to take on new projects. They retain needs and are interested in taking in experience with either FORTRAN, ALGOL or COBOL (programming language) although will consider maintenance asp's or bank / finance related facilities. DON'T MISS this opportunity — RNO NOW!

• All brand new projects
• Chances to get involved from the beginning
• Excellent perks including good pension scheme and full banking facilities

GEF. 2298

Move onto IBM 3031 if you have 12 months IBM COBOL experience and a strong desire to succeed — then let us arrange an interview to see if you are ready to join our engineering group. They can offer an attractive career and are going over to MVS and CICS when they install the 3031. Programmers with DL/I/VSAH and CMS experience will have distinct advantage

- Incentive bonus and Xmas Bonus
- Private pension/TV & R.T.S

REF 2217

\$5,000

Our client, one of the world's leading suppliers of high technology products and services to world-wide energy and industrial markets, has a position available for a highly motivated individual with 12 MONTHS seeking a challenging assignment. If you have:

- * A minimum degree in computer science or engineering
- * Extensive COBOL programming experience
- * A proven ability to work independently
- * Excellent communication skills
- * An opportunity to work with a team of professionals with links to Europe and other international locations

You will be offered full training in database and T.P.

- * Fantastic job opportunities
- * Excellent prospects for career promotion
- * Training in ANALYSIS, T.P. and DATABASE

EXP REF 1982

Do you have potential to become a team leader? Do you have 2 years COBOL programming exp? If so, then this international conglomerate would like to hear from you. Successful candidates will have opportunity to supervise and become involved in system design Burroughs machine exp. an asset.

- * Excellent promotion prospects
- * Season ticket scheme / sports & social club

REF 7011

Our clients major merchant bankers based in the City have a decision to
a programmer to work on real time financial systems for foreign
exchange, investments and various other banking systems. The offer
excellent prospects and training. Ideal applicant will have at least 12
MONTHS experience of BASIC on ANY MAIN.

- * Excellent promotion prospects
- * Superb company benefits including FREE LUNCH
- * Subsidised mortgage

REF. 2289

to £8,000

We have approximately 50 places available throughout the London and Home Counties areas for PLU programmes. We have excellent opportunities for learning new languages as a **ASSEMBLER** and **COBOL**, learning new databases as **CICS**, **IMS**, **TOTAL** and **INTEGRAL**. You CAN'T miss this opportunity to phone NOW!

- FANTASTIC salaries
- Airfare
- Excellent training

Our client, a famous international group is seeking 3 programme
with at least 18 months - 4 years' experience of commercial
applications on MINIS or ILLIAC5. Ideally on DEC POP minis using
BASIC, BASIC + (2) or MACRO under RSTS/E or RSX/i. These are
very varied positions which involve many new and interesting projects

- Regular salary reviews
- Bonus fringe benefits
- Excellent promotion prospects

RFE.2237

Ambitious young person is sought by leading British company to join
 small progressive team working with powerful database system. Ideal
 candidate will have 3 years' programming in FORTRAN with time
 available for real time experience. Will be developing and implementing
 software on real time systems and will be responsible for all aspects of their
 operation. To clients and will be responsible for all aspects of their
 support.

- * Excellent pension, sickness, life and health insurance
- * Good career progression
- * Relocation expenses

REF. 2247

Programmers get into banking! Superb opportunities open for several IBM COBOL programmers with MINIMUM 18 months' experience. RCPL an advantage. To join an exciting environment with an new development work. Competitive salaries & P. monitor using CICS and a new IBM computer system. Compensation on order.

Excellent progression prospects

• Parks include sub-mortgage, sub restaurant, ticket scheme and non-contributory pension

REF. 2358

World-wide engineering company engaged in processing of the 1984-1987 carbon products is currently leading P/L monitor to large PLC programmer with computer. With experience, they are recruiting with higher CICS/VS or at least 3 years experience and preferably with higher CICS/VS or at least 10 years. This is a very interesting position and person will become involved with accounting, cost evaluation and project management systems.

- * A wide move - good promotion prospects
- * Internationally famous company
- * Excellent career prospects

REF. 2281

GET INTO SYSTEMS ANALYSIS! If you are **YOUNG AMBITIOUS** and are presently employed as Programmer / Analyst then phone us NOW. Fantastic opportunity. To join small friendly team at the beginning of new systems development. Super chance to extend your experience. The ideal applicant will have at least 18 months COBOL programming background.

- * Work with very sophisticated computer systems
- * New modern equipment
- * Superb career opportunities within the group.

REF: 2301

\$12,000 NEA

As market leaders in their field and with a correspondingly high turnover, this well known organization has exciting plans for the future. They seek senior persons for their management services division with proven management ability and successful achievement in the implementation of medium-sized systems preferably in an IBM environment. Position will involve planning and advising for information and systems services of company.

- * Excellent career prospects
- * Excellent perks include CO CAR

REF. 2006

Computer services division of a large financial services company require 3 systems analysts for their various groups. Ideal applicants will have programming backgrounds with good IBM systems, prefer REAL-TIME experience. If you can communicate effectively at all levels, have the ability to contribute to business decisions and have accounting or financial systems experience. Phone NOW!

- * Excellent fringe benefits
- * Good career progression
- * Involvement at all levels

REF. 2295

Our client an international engineering company has a new opening for a **Business Analyst**. The position involves close liaison with the user departments **problem solving** and **safety** in the environment. To work on various projects. Ideal applicants will be under 40 and have experience in manufacturing environment preferably on material and production control.

- Excellent working environment
- Superb promotion prospects
- Progressive organisation

REF. 3387

Multi-national conglomerate company are seeking a consultant with at least 5 years' O.P. experience. Our clients are heavily involved in M/IT and M/CRO computer systems. The ideal applicant will have sound mini experience and preferably will be able to take initiative and responsibility, manage projects and slots and be able to communicate at both business and technical levels.

- All expenses paid
- Excellent fringe benefits
- Good promotional prospects

REF 2313

International conglomerate has several openings for successful consultants to work throughout the London area. They are seeking computer professionals to work in the financial environment. Candidates will be expected to have any minimums database experience either IDMS, IMS or QMS etc. ... This is a super opportunity to enhance your career.

- * Challenging positions
- * Excellent company benefits
- * Super prospects within the group

REF. 2220.

£8,500+

This major international group has openings for people with good leadership qualities from A/V hardware environment. Ideal applicants will have at least 4 years' systems analysis experience and implemented one or more major projects preferably in real-time. The company are currently heavily involved in real-time and mini-computer systems.

- * Comprehensive RELOCATION package
- * Co. has impressive growth record
- * Excellent prospects within the group!

ROYALTY HOUSE, 72 DEAN STREET, W1. 01-734 0152/434 1363 (24 hrs.)

RECRUITMENT CONSULTANTS



D.P. SUPERVISOR**LANCASHIRE****SALARY to £5,750**

Our Clients, a profitable member of a 300 million pound UK Group engaged in specialist manufacturing, wish to recruit a Manager for their expanding d.p. function, reporting to the Chief Accountant. They have just installed a large Systime real-time mini computer to cope with user demands for on-line systems. Development plans include: production planning, purchasing.

YOU NEED:—

- * A programming background ideally Basic, or at least a high level language
- * Some systems design experience preferably in a manufacturing environment
- * Personality, maturity, commercial awareness
- * The ability to interface with users at a high level

WE OFFER:—

- * Opportunity to build a d.p. team around you
- * Excellent prospects in a developing installation
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- * Location, the heart of Lancashire with a wide variety of low cost housing

For further details,
CONTACT: Peter Brown on 061-633 0427 or 0706 85823 (Evenings and Weekends)
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NORTH

PROGS — Any M/C — COBOL — BASIC — PL/I — PLAN
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LICENCE NO. NW419

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Informatics Inc. is one of the major U.S. Systems houses with a truly International activities base. In Europe and the U.K. Informatics has experienced an impressive expansion over the past 18 months to the point where it anticipates doubling its manpower resources within the next year.

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In joining us we can offer you openings at all levels, extensive training in Data-base and on-line techniques, International travel, top fringe benefits and the highest salaries in the Industry.

For expense paid interviews during the week commencing May 7th phone Karen Whelan or Gordon Brown on 01-405 8546 (reverse charges accepted).

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01-405-8546

**SYSTEMS ANALYSTS
& PROGRAMMERS****COBOL, PL1
& ASSEMBLER****IBM, UNIVAC
& PDP 11****SALARIES
UP TO £10K+****Systems Engineers
Consultants**

Are you ready
for a share
in the ICL
success story?

up to £7600

Midlands

As a Company we have achieved impressive results in selling and implementing 2901 series machines in the UK market place.

However, the Midlands we wish to strengthen further our ability to support and develop our 2901 base while increasing our pre-sales capability across the whole range of ICL products.

Our customers are the large National Accounts with demanding computer needs across a broad spectrum of applications and equipment.

We can offer you a testing role working in situations of high personal responsibility to tight timescales. You will have to resolve conflicting priorities, make decisions and justify your ideas, judgements and results.

We are a strongly motivated group of people who work in a way that requires a high degree of co-operation, in shared objectives.

If you feel you have the right personal qualities, have a number of years experience in the DP industry preferably with direct knowledge of ICL mainframe equipment and operating environments and most of all can meet the challenge of dealing with new situations, making significant decisions, and accepting new

information fast, write: quoting reference CW1172, to: Tony Kline, Regional Support & Manager, National Accounts, ICL Computer House, 127 Hagley Road, Birmingham B16 8LD. Alternatively phone him on Birmingham (021) 454 6541 ext. 177.

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**COMPUTER OPERATOR**

Salary up to £4,186 p.a.

The Corporation runs a Iwin ICL 2904 configuration in a multi-programming mode under EXEC+ on a two-shift system. Applicants should have at least 12 months' experience on ICL equipment. The salary quoted includes 16% shift allowance.

Application forms and job description are available from Personnel Section, Level 11, Civic Offices, Civic Centre, Reading or telephone (0734) 65911, Ext. 2032.

READING
Borough Council

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**PROGRAMMERS, OPERATORS
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**COMPUTER
ENGINEERS**

BIRMINGHAM
c £6500 + car

Our client needs an experienced FIELD SERVICE ENGINEER willing to accept area responsibility for the Midlands. The position offers above-average growth potential with a very professional company. Ring us for more details.

EDP SYSTEMS 01.637
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c£10,000 p.a. tax free
Programmer/Operator
SAUDI ARABIA
Automotive and Plant

Experienced programmer/operator, age 25 plus. Two years experience of COBOL knowledge of Hewlett Packard computers and inventory control. Opportunity to join major distributor. Single status. Fringe benefits include free furnished accommodation, medical cover, company car and generous leave arrangements.

Suitably qualified candidates please phone 01-493 7117 for application form quoting MRD 9108 (24 hour answering service).

MRD

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MEXICO CITY NEW YORK AMSTERDAM BRUXELLES
SYDNEY JOHANNESBURG AND THROUGHOUT THE USA

**MICROCOMPUTER
SYSTEMS PROGRAMMER**

Systems Analyst/Programmer is required by an international consultancy company to assist in the design and development of microcomputer based management information systems for the food industry. Applicants, who should be graduates, will have a sound knowledge of BASIC and have 2-3 years' experience of commercial systems. Preference will be given to applicants with a knowledge of Assembler and machine language programming.

The position will involve assignments both in U.K. and overseas and salary will be commensurate with experience. Reply giving full career and educational details to: Foundry Management & Design Co. Ltd. 38 Albert Road North, Reigate, Surrey. marking envelope confidential and quoting ref. F&M

We're successful because our staff are

Data Logic operates at the forefront of computing, applying the very latest hardware and techniques to practical commercial problems. We cover the range from mainframes to the smallest computers. We are leaders in the use of microprocessors for applications that not so long ago required far larger machines. Several of our projects involve dispersed networks of ten or more minicomputers.

The exceptional scope of work is important to our staff. We can match their individual experience to their projects. Equally, we can ensure that each project adds to their experience. As

computing itself develops, so do they.

Over the past year Data Logic has grown dramatically in size, in scope of work and in reputation. Our expansion has meant unrivalled opportunities for career progression. We are not prepared to promote people before they are ready for it. But when they are ready — and we give all the assistance we can — the positions as senior programmer, senior analyst, project manager and consultant will be there waiting for them.

The reason is simple. We know that we are successful only if our staff are.

Senior Software Staff

(Ref PS/01)

For mainframe, minicomputer and mixed processor systems, usually supporting terminal networks. Increasingly Data Logic's turnkey projects involve minicomputers at multiple sites.

Applicants must have at least five years experience including some work in consultancy, system design or team management. Substantial knowledge is required of either high level language implementation on a leading mainframe or assembler language development on DEC, Data General or other leading minicomputers. We are especially interested in experience of:

- database systems
- distributed systems
- data communications
- telemetry
- operating systems design and implementation.

Salaries will be up to £8,500, with a car allowance or company car for those at the top end of the scale.

There are vacancies at our Greenford, Birmingham and Manchester offices.

Programmers

(Ref PS/02)

For both mainframe and minicomputer projects which include commercial applications, monitoring and control, and scientific analysis.

Applicants should have at least three years programming and/or analysis experience in high-level language or assembler on any leading mainframe or mini. Salaries will be in the range of £4,500 to £6,500.

Vacancies exist in our Greenford, Birmingham and Manchester offices.

Data Communications Support Engineers

(Ref CP/01)

For sales and engineering support roles within Communications Products Division which markets the INTERTEL range of modems and Network Control Systems.

Applicants should have experience either in sales support for data equipment or in design for digital and analogue systems. A degree or HNC qualification is desirable.

Base location will be in Central London but high mobility will be essential and a car will be provided. Salaries will be in the region of £6,500.

Systems Support Staff

(Ref CE/4)

For specialist support roles within our Customer Engineering Division, which provides nationwide field service for terminal and distributed systems, word processors and data communications equipment. The support staff deal with hardware and software, within a diversity of user environments. Each product represents the state-of-the-art in its area.

Applicants should have a degree in electronic engineering or computing science, followed by at least three years work in specialist support with a mainframe manufacturer.

Base location will be Harlow, Essex but high mobility is essential and a car will be provided.

Programmers

(Ref TS/03)

To work on systems software, compilers and advanced packages for applications such as data entry, for Data Logic's PLS100 range of terminal and distributed systems. This is an outstanding opportunity to gain experience in the development of complex high performance standard software. Programmers will work in small teams, taking considerable responsibility for distinct functional areas of the total system.

Applicants should have one to three years experience of software implementation in high level or assembler languages. A degree in computing science is desirable.

Location will be Harlow, Essex and salaries will be in the range of £4,500 to £6,500.

Data Logic

Write or call, quoting the appropriate reference:
Kathy Martin, Data Logic Limited, 29 Marylebone Road, London NW1
Telephone 01-486 7288.

A Raytheon Company

JBA

Sales Executive

London Based

Currently £13,000 + car

Having established an enviable reputation for the quality and efficiency of its software packages in the United States over the past ten years, this company's venture into the U.K. market has proved to be astoundingly successful.

To further expand and consolidate this relatively new venture, a man has been made for an additional Sales Executive to join the London team. The appointee will be able to rely on high-level technical expertise as support back-up, but candidates will ideally have had systems project management experience prior to entering the sales field.

Career prospects are superb - the company's next step will be into Europe, so Sales and Branch Management positions will be available.

Contact: Andy Wright

Sales Executive - Industrial Systems

London

c£9,000 + car, bonus and fringe benefits

A large well established group with a leading name in the process control and industrial systems market wishes to appoint an additional Sales Executive to assist with the current demand for their services.

Applicants should have at least five years experience in the design and implementation of industrial applications using micro or minicomputers. A successful record of both sales and project management is essential. Knowledge of process control, instrumentation, automation of production systems, programming (CORAL, RTL/2 or ASSEMBLER) would be useful. This is an outstanding opportunity to join an expanding group where both technical and sales ability will be fully utilised and well rewarded.

Contact: Jim Baker

Engineers - Field Support

All Areas

to £8,000 + car & benefits

A number of clients, principally manufacturers or suppliers of micro, mini or terminal systems are seeking experienced engineers for first line support.

Generally, the work involves dealing with a variety of problems associated with hardware and diagnostic software, candidates will be expected to have the experience to solve any client problems. Applicants should have a minimum of one year's experience in a field engineering environment and have at least ONC in electronics. Most companies provide intensive training and follow this up with interesting and demanding field work.

Excellent remuneration packages (c. £8,000), career prospects and work involvement.

Contact: Margaret Stevens

For further information on any of the above vacancies please contact the appropriate consultant. If your qualifications do not match the above positions but you are seeking other opportunities please contact us anyway.

JAMES BAKER ASSOCIATES, International Personnel Consultants
16 Maddox Street, London W1. Tel: 01-491 4478

Communications Consultants

Essex

up to £11,000

A well known International Group are embarking on an ambitious project to develop a system which will be used as a tool for designing message and packet-switching software. Their requirement is for at least one managing consultant to produce overall design concepts including software methodology techniques, several software planning staff, with in-depth IBM software knowledge, to implement design procedures, and at least two Systems Programmers to facilitate integration.

The work will be carried out on large IBM machines, so appropriate IBM experience is essential. If you feel that you are possibly suitable, please call to discuss in more detail.

Note: Systems Programmers must have a degree and salary could be in region of £9,000.

Contact: Mike Creamer

Engineer Programmers

North Surrey

£8,000-£8,500

This company, a subsidiary of an extremely large engineering consultancy group, specialises in producing individually tailored industrial systems, usually based on either PDP11 mini or INTEL micros. All successful candidates can have a career leading to Chief Engineer and above - your capabilities and drive will be well rewarded.

Applicants should have at least 1 year's mini or micro systems experience with a good knowledge of a low level language. If you also have an Engineering or Electronic degree and/or experience of hardware design, this would prove an added advantage.

A career with this company will ensure total involvement in the latest techniques and applications of control processing.

Contact: Andy Wright

Basic Programmer/Analysts

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min. £6,500 +

A growing organisation with definite plans to double the size of its PDP11 turnkey project teams within the next twelve months, is keen to recruit young men and women who have sound BASIC or BASIC + programming skills. Opportunities for career progression to team and project leadership can come very quickly indeed, along with extremely high financial rewards - indeed the company policy is to groom the more junior team members for senior positions and not to recruit at that level.

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Contact: Andy Wright

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Our client, one of the largest Industrial Groups in Ireland, with diversified business interests, wishes to appoint a **Systems Analyst**.

They currently operate an **IBM 370 Computer System** and will soon begin to install a distributed processing network, utilising **interactive Minicomputer Systems**.

The successful candidate will work very much as a Client/User representative implementing dynamic systems for a progressive management team.

Ideally, he should be a bright and well motivated computer professional with **sound business experience** and should have:

- 4/5 years' Analyst/Programmer experience (at least 2 of them with on-line applications)
- Implemented major projects
- Ability to communicate well with Users.

THE REWARDS:

In addition to a **variety of work** in a progressive environment, you will receive an **attractive salary**. Fringe benefits are first class and include career development, training and non-contributory pension.

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All applications will be strictly confidential and your identity will not be disclosed to our client without your consent.

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Due to the development of several data base real-time commercial applications our client is now seeking additional analyst programmers to strengthen their project teams. Hardware comprises an IBM 370/158 running under MVS and using IMS and DB/DC software. These positions offer applicants the opportunity to gain new hardware and software knowledge with excellent formal training. Successful candidates will be required to demonstrate a minimum of two years' commercial COBOL experience together with some analysis and design involvement and will be able to use this background to develop programs for database and teleprocessing systems and lead a small development team. With a very competitive package of benefits this is a very attractive opportunity for career progression minded analyst programmers.

NW1/0305

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01-353 0981 24 HRS.

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BERKS/BUCKS BORDER UP TO £7500

An IBM 4331 has been ordered by our client as the upgrade for their existing hardware and in order to help establish system development plans for the future an additional programmer analyst is required. Present systems are well established and involve sophisticated batch and teleprocessing computing for which the IBM 4331 will provide further system development capability. The major development language is RPGII, however, candidates who can demonstrate a sound programming background gained in an IBM 370 DOS installation will also find this position to be of great interest. The company are able to offer formal training in technical areas and all the usual benefits associated with a successful business operation.

NW2/0305

ANALYST/ PROGRAMMER £6-7k ENFIELD

Here is the opportunity to fully develop your skills as a systems analyst.

By joining a small and friendly department you will become involved in a wide range of applications from basic accounting systems through to on-line order entry and stock control. The installation is a Univac 90/30 for which our client intends developing other systems necessary to match their expansion programme.

Our client is a major manufacturer supplying the construction industry with a comprehensive range of nationally known products.

To be considered for this position you must be presently employed as a Programmer/Analyst, be educated to at least 'A' level standard, have been in DP for 4 years or more and gained good COBOL experience.

If you have these qualifications the starting salary is within the quoted range in addition there are re-location expenses where applicable, contributory pension scheme, subsidised canteen and sports and social club.

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The Person:

The successful applicant must be able to demonstrate that he/she has at least 5 years operating experience, at least 3 of which should have been on IBM machines preferably using the operating systems mentioned below. Previous supervisory experience would be an advantage.

The Installation:

A 2-shift system is in existence during which the Society operates its on-line and batch systems on an IBM 370/148 under DOS/VS, CICS/VS, POWER/VS and VM/CMS.

Benefits:

- Preferential Mortgage Rate ● Free Life Assurance Cover
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Applications giving details of relevant experience to date should be sent to:

The Data Processing Manager
Gateway Building Society
PO Box 18, Worthing
West Sussex BN13 2QD



CLASSIFIED COPY 31st ISSUE

This issue is effected by the Bank Holiday. Copy for this should be sent early to arrive not later than the Friday preceding date of publication. ONLY a small amount will be accepted on each Tuesday morning. Your co-operation will be much appreciated.

For further details contact David Abbey
Tel. 01-261 8016. Telex Binespress London 25137

SUPPORT CONSULTANTS — GERMANY — UK SALARY c £10,000 p.a.

Applicants will already be successful technical applications programmers with "In Depth" FORTRAN experience, preferably with a knowledge of C.A.D. techniques, who wish to move into the more challenging role of systems implementation and customer support. These positions will be based in the U.K. initially, but relocation to Frankfurt, for a period of 1 year or more, is necessary. The salary will be re-assessed when relocation is effected.

APPLICATIONS CONSULTANT — UK & EUROPE. NEB c £10,000 p.a.

Your prime responsibilities are in a POST SALES environment where you will be assisting client customers, as a consultant, on effective system usage and further updates and development.

Your background should include a good working knowledge of FORTRAN, preferably within a Numerical Control and Graphics environment.

SYSTEMS SPECIALIST — UK NEB c £9,000 p.a.

Essential requirements: 3 years plus FORTRAN, Technical Development Applications experience. A working knowledge of Assembler and previous exposure to Numerical Control and/or graphics applications, would prove invaluable to successful applicants.

APPLICATIONS PROGRAMMERS —UK NEG c £9,000 p.a.

Successful candidates will be above average programmers with some technical Systems Analysis experience. Your prime responsibility being to "Tailor" and write "back-ends" to a graphics package with occasional "bespoke" development.

COMMUNICATIONS SPECIALIST — UK & EUROPE. NEG c £11,000 p.a.

Candidates will have an "In Depth" general background in all aspects of Communications and although the position does not necessitate an IBM background, a knowledge of SDLC protocols and S.N.A. would be advantageous.

THE COMPANY — is the European subsidiary of the fastest-growing U.S.A. C.A.D. and graphics specialist in the world. The results over the past few years have been exceptional, creating an unprecedented demand for above average technical skills as outlined above. Initially, all positions will be based in Central London or Buckinghamshire, but candidates should be prepared to travel throughout the U.K. and Europe, approximately 25% of the time.

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Irrespective of your current salary, if you believe you have the ability to successfully handle the above positions, our clients will offer you a salary and career second to none. For more information please telephone now quoting reference number DVW 79/9.

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We supply a central processing function to all groups within our Company, using a network of mini-computers, not over 1980's, and running under VME/B with 2Mb store and one running under DME with 1Mb store.

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Software Engineers

are required by HASLER AG, Bern, Switzerland, who are working on the DIGITAL COMMUNICATIONS SYSTEM OF THE FUTURE as a joint project with the Swiss PTT and leading telecommunications companies. To assist with the development of software for this fully electronic, process controlled communications system (FSI) we are looking for Software Engineers.

The Job: The design, specification, implementation and testing of software for a complex, real time multi processor system. We will provide a stimulating environment and the opportunity to expand your knowledge.

Your Qualifications:

- thorough experience in the development of software for processor-controlled systems using an Assembler
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The place of work is Bern, Switzerland. The working language is German. We offer attractive employment conditions with a starting salary in the range £11,000 to £16,000.

Please call in the first instance (01 493 0801, Extension 1, for a technical description of the system and an application form. Interviews will be held in London.

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Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below. QUOTE REF. CW 133-9J

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A Teleprocessing Specialist is now required to provide technical support to users and computer centres; give advice on communications requirements to Systems Managers; plan and implement communications facilities and interface with the Post Office for ordering and approvals. Applicants, man or woman, must have proven ability in a similar role dealing with a large network. A sound knowledge of all communications devices and, if possible, experience in networking, preferably in an IBM environment, is also desirable. Experience in fault tracing is essential. Applicants must be self-motivated; able to work with the minimum of supervision and willing to travel extensively in the UK.

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Phone Richard Wootten on 01-689 2166 extension 2075 if you would like to discuss details, or contact ISA-UK, Personnel Department, City House, 420-430 London Road, Croydon, CR9 3QR (phone 01-689 2166 ext 2028).



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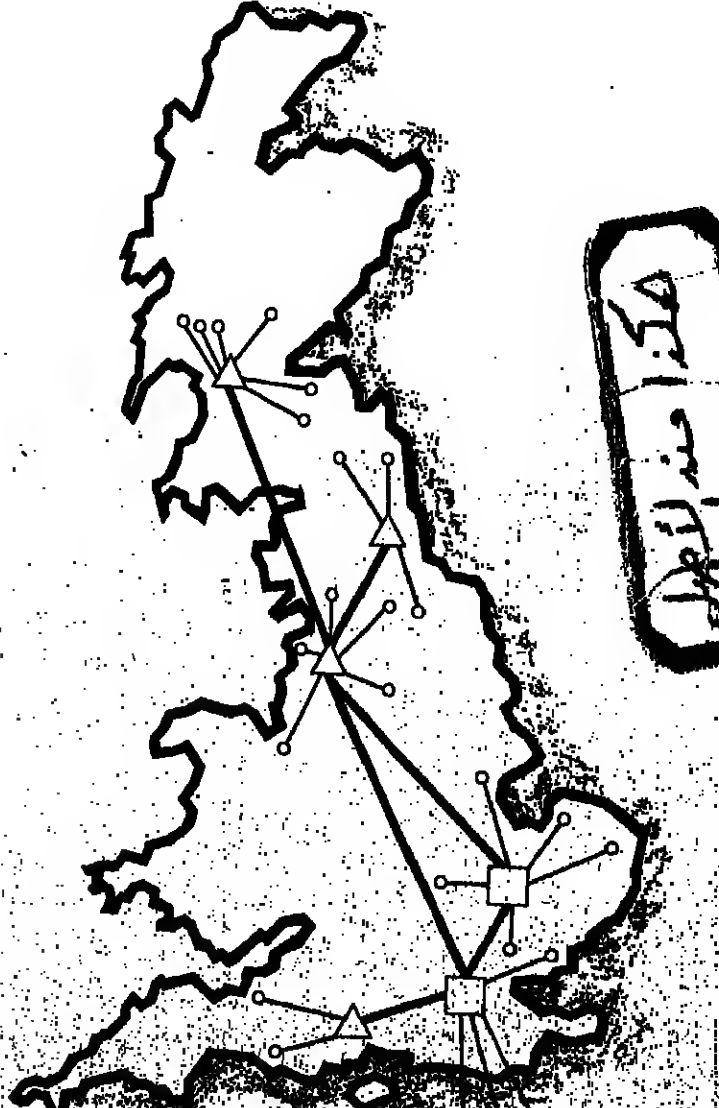
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Reed Executive is a dynamic group operating in the fields of recruitment, retailing and travel. To cope with continued growth and to provide management with concise information we have developed our own computer facilities using batch techniques on an in house Univac computer, located in the Kingston area. We now wish to expand these facilities by the introduction of communication based systems so providing opportunities for the following:

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Suitable for a Systems Analyst, now looking for greater responsibility and with at least three years systems experience together with a good knowledge of communication techniques. The successful applicant will initially occupy an analytical role but should quickly take full responsibility for a new project team, developing the major communications system.

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Toyota (GB) Ltd., part of the Indochina Group holding the exclusive concession for the third largest motor manufacturer in the world, wish to recruit a number of Computer professionals.

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The Company also requires an enthusiastic TRAINEE whose salary will depend upon past business experience, education, qualifications and age.

Applications should be addressed to: Maureen Cross, Toyota (GB) Ltd., 320 Purley Way, Croydon CR8 4HB or telephone 01-881 1921. Interviews will be held at Crawley.

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An editor is required for Computer Weekly, Britain's leading computer publication which is distributed to more than 82,000 computer personnel in the UK every week, and to a further 12,000 overseas readers ten times a year.

The post, one of the major editorial positions in the UK technical press, will, ideally, be filled by a person with experience of both journalism and the computer industry.

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In this task the editor will be able to call on a team of 14 journalists whose technical ability and experience are second to none, in the field of computer publishing.

Directing and motivating this team, and formulating the editorial policy in conjunction with the publisher will be the editor's main responsibilities.

The salary is negotiable, depending on the successful candidate's qualifications and experience, but will be commensurate with the position of Computer Weekly as one of the most important journals to be published by IPC Business Press.

Please apply to Chris Hipwell, Editorial Director, IPC Electrical Electronic Press, Dorset House, Stamford Street, London SE1.

Senior Programmer and Programmer

Digital Exploration Ltd. are the UK subsidiary of one of the world's leading independent geophysical contractors to the petroleum industry, Digicon Inc. of Houston, Texas.

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Our client, a large Machinery Manufacturing Group with several companies in the East Midlands, has embarked on a long term plan to investigate, develop and implement Computer Systems for all users in the organisation, using IBM equipment.

The successful male or female candidate will be based in the East Midlands and will be responsible for an expanding team of about 10 Analysts and Programmers investigating mainly Group Manufacturing Systems but consideration must also be given to Group Financial Systems.

Our client invites applications from D.P. professionals with at least 2 years management experience in business systems (particularly Manufacturing Systems) and Data Processing. They must have a successful track record of controlling and motivating staff so it is unlikely that anyone below the age of 30 would have the experience required. Whilst experience in IBM equipment is desirable it is not essential.

An excellent starting salary of around £8500 plus a company car will be offered and relocation expenses will be available as appropriate. For an application form please ring Mrs M.C. Townsend on Leicester 56036.

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Providing computing facilities for the group, it is intended to eventually introduce an ARC distributed system and provide bureau facilities to external users.

SYSTEMS ANALYST ... c £7250

An experienced Systems Analyst is required to design and successfully implement a fully integrated accounting system to be used by the entire group, and new companies, as they are acquired. Candidates should be able to offer the experience of at least one system implementation and a general commercial awareness.

PROGRAMMERS c £6250

Opportunities exist for at least two programmers to join a small professional team and contribute to the development of a variety of commercial projects. Successful applicants will have at least eighteen months' business experience gained in either a mini or small range mainframe environment.

As the Computer Services Division is at an early stage of development, opportunities for career progression are outstanding and are geared to personal achievements and individual ambition.

Ref. N1/0305

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"Had such a need existed, we would have pioneered its implementation. As innovators, this pioneering is one of the things distinguishing us from those companies who claim to compete. We have imitators of course in the specialist fields of Mini & Micro based systems, process control, message switching and computer based communications networks, and this imitation is the sincerest form of flattery we receive".

If you are a graduate (or equivalent) in computing or a related subject, and if you have demonstrable experience of programming Mini/Micro based systems and would like to work in a first class environment in Holland then phone us today. Depending on qualifications and experience expect to talk in the salary range of:

£9 - 14K



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ROYAL MILITARY COLLEGE OF SCIENCE COLLEGE OF SCIENCE SHRIVENHAM, SWINDON, WILTSHIRE VACANCIES IN OPERATIONAL RESEARCH

The Operational Research Branch of the College has a limited number of vacant research posts at Senior Research Scientist / Higher Research Scientist / Research Scientist level. Successful candidates will join small multi-disciplinary research teams working on problems of current interest to the Ministry of Defence and other Government Departments. An interest in computer simulation/scientific programming or scientific gaming is desirable for some posts but an essential requirement is that candidates should have a broad and enquiring outlook. Appointment at Senior Research Scientist level requires experience in practical OR, preferably in the application of OR to military problems, plus an ability to lead a research team. Applicants should have a good first degree in any scientific or engineering subject (or this grade). Appointments will be for 2 or 3-year periods in the grade of Senior Research Scientist (4 years post degree experience, minimum), salary scale £8154-£35039 p.a. (Higher Research Scientist) 2 years post graduate experience (minimum), salary scale £4101-£5448 p.a. / Research Scientist, salary scale £2839-£4415 p.a. depending upon qualifications and experience. Applications and further information from the Civilian Admin Office, Royal Military College of Science, Shrivenham, Swindon, Wiltshire SN6 9LA. Telephone 0793-782551 extension 111.

Senior Operator/ Shift Leader

required in the Computer Centre which operates a '12BK' ICL 1903T with EOS, 80s, a GEC 2050 RJE, and a GEC 4070 Interactive computer. The Centre is run on a 2/3 shift basis using parallel George 2, sireams and ICL maximop. Preference will be given to candidates with ICL 1900 operating experience. Salary according to qualifications and experience within scale £3,894 to £4,629 p.a. (Senior Operator) or £4,180 to £4,878 p.a. (Shift Leader). These salaries, which will be reviewed in July 1979 for cost of living increase, are inclusive of shift allowance. Generous holidays and sick pay scheme. Local Government superannuation.



Application form from:
Employment Office
Cranfield Institute
of Technology
Cranfield
Bedford MK43 0AL

MEMORIAL ANALYST

ISN'T IT TIME YOU UPGRAD YOUR SKILLS AGAIN?

One of the problems of being a senior analyst or project leader is that the job can become mundane and work tends to be in areas where you already have the most experience. This is an opportunity to gain a broad range of experience as a...

COMPUTER AUDITOR — around £9,000 but very negotiable.

This is a new post with a major international organisation and will involve setting up a d.p. audit function throughout Europe. It will be necessary to consider physical, informational and procedural security for local management as to the type of considerations necessary.

Responsibility will be held for vetting both operational systems and those under development. Application areas include finance, marketing, manufacturing, technical and MIS. Methods will be established for investigation and control. New techniques and aids will constantly be appraised.

Communication will be at all levels up to top international management and consultancy services will be provided to European audit staff on data processing aspects. It is therefore a very full role offering the challenge and interest of setting things up from scratch and the chance of gaining additional experience within technical and managerial areas whilst gaining an excellent insight into the company's operation.

The successful applicant will have a broad computing background and the positive attitude necessary to get things off the ground and to deal with top management. A good accounting or business appreciation will be very important as total d.p. systems will be evaluated. Although previous audit experience would of course be valuable, specific training will be provided where necessary.

This is an important post within the company and so starting salary will be very negotiable and other major company benefits will of course apply. Clear opportunities for progression exist within d.p. or line management generally. The position will be based in London close to main line and underground services. To find out more telephone our Croydon office.

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below. QUOTE REF. CW 125-0H

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CAP ASSOCIATES
LONDON AND MANCHESTER
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A CITY OFFICE, IMPROVED
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TESSIDE POLYTECHNIC Computer Centre

The Computer Centre provides a computing service for the teaching, research and administrative work of the whole Polytechnic, and has recently installed the first phase of a powerful Univac 1110 computer which will support over 80 terminals and a range of graphics devices. Applications are invited for the following newly created posts.

SENIOR PROGRAMMER/ANALYST (OPERATING SYSTEMS AND COMPILERS)

To join a small team involved in maintaining and enhancing the manufacturer's operating system, EXEC 8, and other systems software. Several years' systems programming experience is essential. Knowledge of EXEC 8 would be advantageous but is not essential.

PROGRAMMER/ANALYST OR SENIOR PROGRAMMER/ANALYST (INFORMATION AND USER SUPPORT)

To join a section concerned with providing documentation, information and training courses for computer users within the Polytechnic. Good computing knowledge and some experience of preparing technical documentation in a computer environment is desirable. Candidates for either post should possess a degree or equivalent qualification. Salaries, according to qualification and experience, will be on the scales:
Programmer/Analyst: £3,420-£4,761 p.a. (AP3-AP8) + £312 supplement.
Senior Programmer/Analyst: £4,620-£5,748 p.a. (R01-R02) + £312 supplement.

Application forms and further particulars may be obtained from: The Registrar, Teesside Polytechnic, Borough Road, Middlesbrough, Cleveland TS1 3BA, to whom they should be returned within 14 days of the appearance of this advertisement.

SENIOR COMPUTER ASSISTANT — POST T63

Salary: £4245-£4832 inclusive of supplement

And also the need for the above post from experienced operators of ICL hardware is run by the Council of 12, 2903 (20M FEOS CR LP 10E under VME 8. We are among the leaders in this field of operations. Experience of ICL hardware and operating systems is required. The successful applicant would join a small team and would be responsible for the successful operation of the system and be able to take appropriate action if system failure occurs. The successful applicant will be given opportunity to take part in writing JCL and programming COBOL in addition to gaining knowledge of ICL's new range of system. No shift work is involved.

Consideration may be given to the transfer of a Council dwelling suitable to the needs of the family of the person appointed in accordance with the housing policy. A scheme for allowance towards the cost of travelling distance and removals incurred by new staff has been arranged.

For job description and application form returnable by 17th May, 1979, please contact the Personnel & Management Services Office, Council Office, Route One, Wokingham, Berkshire. Telephone: Wokingham 78822, extension 41, quoting reference T63.

WOKINGHAM DISTRICT COUNCIL

Let's make your career SYSTEMS ANALYST (Near Edinburgh)

Let's, a progressive and developing publishing company with its own manufacturing and computer resources, have an excellent opportunity for a Systems Analyst who wishes to develop his/her career. The responsibilities of the post will be to review and develop the methods and procedures currently operating in the company's various Departments with a view to streamlining the contribution these procedures make to the overall effectiveness of each unit and to the company as a whole. Our present situation provides a first class opportunity for a competent company's efficiency and at the same time to increase his/her experience and future career prospects. Ideally applicants should be educated to degree level and possess experience of installing computer systems preferably in an industrial/manufacturing environment. An O & M background with a strong systems bias is also likely to be suitable. An essential requirement however is the possession of interpersonal skills to deal effectively with employees at all levels in the organisation.

The right candidate will be offered a very attractive remuneration package and conditions of employment. Relevant expenses where appropriate will be paid. Please write or telephone for an application form to:
Letts The Personnel Manager
Letts Andersons Limited
Thornbank Industrial Estate
Dalkeith, Midlothian
Tel: 031-863 1871

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- Design, co-ordinate and document the development of the communications network
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- Implement and co-ordinate network fault diagnosis procedures.
- Assist with the cutover and maintenance of a wide variety of applications.

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We've started a comprehensive expansion programme — in hardware, systems, staff and new accommodation — WHY NOT EXPAND YOUR CAREER WITH US?

OTHER BENEFITS

Wide range of relocation allowances; flexible working hours; restaurants; free car parking; staff club and recreational facilities.

If you have a minimum of 2 years' detailed involvement with the design and day-to-day management of a communications network in an operations environment and are interested, please phone or write (with cv) to Phil Wilde, Computer Services Division, County Hall, Kingston upon Thames KT1 2DN, 01-548 1050, ext. 3370/3371.



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THE UNIVERSITY
OF SHEFFIELD
LIBRARY
POST
ASSISTANT
LIBRARIAN
(Automation) Grade HA

Applications are invited from suitably qualified men and women graduates for the above post vacant from 1 July 1979. Candidates should have some experience of automated library systems in academic libraries, and preferably some demonstrable aptitude for programming and systems work. The duties will include some responsibility for the established Sheffield Co-operative Ltd at Sheffield, and for new developments in the area of Automation in collaboration with the Automation Officer (Dr. B. Christie). Initial salary range £3852-£5251 per annum (scale 1) plus £2764 a year.

Applicants from the Registrar and Secretary, the University, Sheffield S10 2TN to whom applications should be sent by 14 May 1979. Date of: 18/5/79

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University Graduate
Training position
in the
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University of Manchester
Booth Street West, Manchester M15 6PB

Graduates with a Manchester Business School Diploma or Master's Degree are keenly sought throughout Europe.

Make 1979 the year you join them.

A period of practical experience following your Bachelor's Degree is the ideal preparation for the course (one-year MBA's from other schools may qualify for direct entrance to the second year of the course.)

Financial support is available for those whose employers do not sponsor them.

Final selection for September 1979 will be made before 30th June.

Enquiries to Dr. Mumford
Telephone 031-273 8228, Extension 162.

* Certain professional qualifications are acceptable in lieu.

Sales Executives (Computer Systems)

Income c £12,000 p.a. plus car plus benefits
London based

We are retained by a highly successful and profitable corporation, who have through their diverse range of products penetrated into many market activities associated to the computer industry. Their latest division has launched a new dimension of Computer Related Systems, with a product being keenly priced and with superb performance, capable of operating as a stand alone system or as a Communications Processor. This audio/visual system opens new paths of information exchange, which can be entered and requested from remote locations. The applications are many and varied but at present marketing efforts are concentrated in the commercially defined areas of Credit Authorisation, Reservations Financial Transactions, Sales Order Entry, where there is a growing and eagerly awaiting market place, and broader markets exist.

Owing to the growth of this operation, outstanding opportunity to progress exists where the company believe in rewarding effort and where substantial financial packages are achieved through having direct technical support, backed by strategic plans meaning that realistic sales quotas are readily exceeded.

To qualify you should be a self motivated, successful sales executive, currently operating in the computer field and ideally should be an ambitious professional with the determination to succeed, who is actively seeking an opportunity to significantly contribute to a small but growing sales team.

CONTACT IN THE FIRST INSTANCE RICHARD CHAMPION 021-236 3781
OR HAGLEY 4106 (evenings or weekends)

London 01-935 0671 3 Mandeville Place, Wigmore Street, London W1M 5LB
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA

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As one of the major companies in our field with a well-established professional reputation, we have both the resources and expertise to train you in the skills needed to carry out this challenging and rewarding work.

You must have a background in the computer industry, such as programming, analysis or any sales-oriented position. Without this essential grounding you could not be expected to give career advice to applicants or advise clients in major recruitment assignments. Under 35, you should possess the potential to succeed in highly sales-oriented situations in which you will have the freedom to work very much on your own initiative.

The wide range of activities encompassed by the work will undoubtedly surprise you. You will also be interested in your training and career development. To find out the answers and much more about the varied and interesting life as a recruitment consultant, contact us to arrange an informal discussion and we will also tell you about the outstanding long-term career opportunities available. Ref. AW1/1503

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Telephone or write to: 30 Fleet Street London EC4Y 1AA 01-353 0981 (24 hrs)

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Digital and Microelectronics Engineers

SPECIAL SHORT COURSE LECTURESHIPS

PCs and ICs are co-operating under M.A.P. to establish a Microprocessor Education Activity (MPEA).

Engineers or lecturers with experience of Digital or Microelectronics techniques are invited to apply for short positions.

All the teaching will be in industrial personnel in a short course mode.

Consultancy will be encouraged.

Special training courses, both in the UK and the USA, will be available.

Appointments on the Principal Lecturer scale.

Salaries £7521-£28828 p.a. (M.A.P. 1978)

Application forms from Personnel Officer (Technical Staff, AKB), University College London, Gower Street WC1E 6BT (from whom further particulars are available).

UNIVERSITY COLLEGE
LONDON

PROGRAMMER

Applications/system programming post available from July 1st, 1979, for Department of Geography Computer Laboratory.

Opportunity for part-time Diploma or M.Sc. in Computer Science.

Salary scale £2,410-£4,892 (hor)

— £5,004 plus £820 per annum (London weighting: £95 benefits).

Application forms from Personnel Officer (Technical Staff, AKB), University College London, Gower Street WC1E 6BT (from whom further particulars are available).

Salary on scale £4,500-£5,000 per annum (undergraduate).

Applications with the names of referees should be sent by May 31st 1979 to the Establishment Officer, The University College, Gower Street, London WC1E 6BT.

UNIVERSITY OF ST. ANDREWS

Administrative and Library Computer Unit

OPERATIONS SUPERVISOR

The Administrative and Library Computer Unit provides a computing service for administrative, financial and library applications in the University. The equipment consists of a CTL 8050 with 144 K bytes of memory and 144 M bytes of online disc storage operating under MOPUS 4 Advanced Operating Facilities. The system is widely geared to online working with applications based on transaction processing software and interactive program development. Some batch applications are currently run on the University's IBM 380/44 computer but these are being transferred to the CTL 8050.

Responsibilities of the Operations Supervisor will include day-to-day management of the computer system, including staff supervision, co-ordination of data preparation and control of the integrity and flow of all jobs and data. Candidates should have at least 2 years' experience on a shift basis.

Salary on scale £4,500-£5,000 per annum (undergraduate).

Applications with the names of referees should be sent by May 31st 1979 to the Establishment Officer, The University College, Gower Street, London WC1E 6BT.

KNIGHT PROGRAMMING & SUPPORT LIMITED

NORTHERN OPPORTUNITIES

PROGRAMMERS MERSEYSIDE £25000

Our client requires programmers with RPGII experience to work on IBM hardware in an expanding installation. Ref. 1141

SYSTEMS PROGRAMMER SCOTLAND £27500

Our client requires a Systems Programmer. Very pleasant location and reasonably priced property. Ref. 1085

SYSTEMS ANALYSTS LEEDS to £27500

Our client requires Systems Analysts. Analyst Programmers and Programmers to work on DEC equipment, with Cobol and Pascal. Ref. 1109

PROGRAMMERS THE NORTH to £27500

A self-financing productivity payment is offered. Cobol Programmers are required to work on ICL hardware in a rapidly expanding installation. Ref. 1098

SYSTEMS ANALYSTS MODERN WEST to £27500

Our client requires experienced Systems Analysts to work on ICL hardware. Benefits comparable with any large company offered. Ref. 1098

ANALYST PROGRAMMER EAST LANCES to £27500

Our client is in need of an Analyst Programmer to work on IBM hardware in a financial environment. Ref. 1126

SYSTEMS ANALYSTS HULL to £27500

An experienced Analyst is required by our client to work on IBM hardware. Applications, financial, commercial and manufacturing. Ref. 1131

SYSTEMS PROGRAMMER NORTH-WEST to £27500

A subsidised mortgage is offered to successful applicants. IBM hardware, installing new systems in a nationwide teleprocessing network. Ref. 1138

FOR DETAILS OF THESE AND OUR OTHER VACANCIES PLEASE CONTACT JOAN JOHNSTONE
143/4 ROYAL EXCHANGE BUILDINGS, MANCHESTER M2 6BT
061-833 9341/5 (24 HRS.)
DATA PROCESSING RECRUITMENT SPECIALISTS

British Waterways Board

Computer Centre Wembley

We are currently involved with 24 Computer Applications, encompassing the many and varied interests of the Board. They range from Water Control to Warehousing, Plant Utilisation to Craft Licensing, as well as the normal Payroll, Lodgers, etc.

We have outgrown our present configuration, which is now being replaced with the new Burroughs "B2800" series of Computers.

The exciting new development will enable us to develop a national network to cover all our administrative centres in England and Scotland. The network will be channelled through a front-end processor linked to the main frame, which will also multi-program our existing batch work, in single shift working.

Applications are therefore invited for the following posts:

Senior Analyst/Programmer (Cobol)

(Salary range £6515-£6893 p.a.)

Analyst/Programmer (Cobol)

(Salary Range £5682-£6893 p.a.)

These are senior posts within the Board's organisation and applications should state full details of all previous experience in the computer field.

Apply to: Principal Personnel Officer, British Waterways Board, Willow Grange, Church Road, Wretford, Herts. WD1 3QA

Computer Operator

£5,100 (incl. shift allowance)

A vacancy has arisen at our Prescott Centre on Merseyside for an experienced Computer Operator (male or female) with a minimum of 18 months experience on ICL 1900 equipment, George III knowledge preferred.

The department operates a 3 shift system using a 256K 1904 S equipped with direct access and on-line George III data communications facilities.

Conditions are attractive and commensurate with a large multi-national company.

The above salary is currently under review.

Please apply in writing to:

Mr. L. Berker,
Personnel Services Manager,
Control Departments,
BICC Limited,
P.O. Box 1, Prescott,
Merseyside, L34 5SZ.



ICL Computer Operators

Enfield £3,700-£5,700
including shift allowance

- * ICL 1900's
- * IBM 360
- * ICL 2900's
- * Communications

For operators with ICL experience, this is a chance to widen your skills in a whole range of hardware and software. We have the equipment, the training commitment and the opportunities to increase your experience significantly.

Our existing installation in Enfield comprises an ICL 2972/VMEB system due for enhancement to a dual 2972, three large ICL 1900 mainframes and an IBM 360 system. The installation lies at the centre of an extensive communications network covering East Anglia.

As we expand our operations to cover the transfer from 1900 to 2900 work we will require more operators; preference will be given to trained operators with a minimum of two years experience on ICL 1900 systems.

The salary will depend on your experience and will be within the range of £3,700-£5,000 p.a. plus 17% shift allowance on basic pay. Benefits include subsidised restaurant, 4 weeks holiday p.a., pension and sickness schemes, sports and social facilities etc.

These positions are open to both male and female applicants.

Application forms can be obtained from:

The Personnel Officer,
Eastern Gas, Tower Point,
Sydney Road, Enfield,
Middlesex.
Tel: 01-366 1234
ext. 227 or 402.

EASTERN GAS

SYSTEMS MANAGER Godfrey Davis (London) Ltd.

We are planning to install at Alorton, Middlesex, a Hewlett Packard 3000 (111) with image data-base during the current year and we require a Hands-On System Manager to be involved with the package and assist in the set up of the Data Base structure.

The initial systems will be custom written by a software house and phase 2 and 3 will include the connection of remote terminals to our other main data bases.

We are looking for an enthusiastic and competent computer professional with good Cobol and basic experience to be directly responsible to the Group Computer Services Manager.

For further particulars ring Mr. J. S. Cooke on 01-950 2759

Godfrey Davis

UNUSUAL OPPORTUNITY for top-class ICL 2903/4 and System 10 SYSTEMS ANALYSTS AND PROGRAMMERS

to participate in a British profit-sharing partnership enterprise working in Germany.

- High potential job satisfaction from self-determining life-style
- High financial rewards with no ceiling
- Expenses
- Security
- Other benefits

Knowledge of German or willingness to learn very advantageous.
To find out more ring or write:

P. F. Tischer, Managing Director
CAPITAL CITIES PERSONNEL
LIMITED
Assets House, Elvorton Street,
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Software Programmer

To £6,000 p.a.
West Country

The Software section of the Technical Services Department, based at Taunton, Somerset, have an immediate vacancy for a Software Programmer.

The department provides advice, assistance and data to senior management and other departments on all aspects of data processing; the Software section researches all the available languages and operating systems on Debenhams current range of equipment (ICL 1501's, 1903T, 1904S and CMC Reality).

Applicants should have a number of years of experience on any or all of these machines in at least one high and one low level language.

Please write or telephone for an application form, a copy of the job description and further details quoting ref BH/12 to:

Personnel Administration Manager,
Debenhams Computer and
Administration Centre, Park Street,
Taunton, Somerset. Telephone:
Taunton 87979 ext 385.

Debenhams

Systems Design and Development

Major New Hardware Investment

West of London

Our client is the European division of a successful manufacturing company. Currently they are involved in substantial hardware investment, complemented by extensive new systems development to exploit the potential of their planned computer complex. When complete, they will have an integrated European network of distributed processing. Conceptually their approach is unusual and forward-thinking. This development is centred in a pleasant semi-rural location about 40 miles west of London.

They now wish to add a Project Leader and two Systems Analysts to their development team. Working in a highly professional environment, the successful individuals will be involved initially on aspects of complex sales and inventory systems, to be implemented throughout Europe.

European Travel

Project Leader

package to £8000

Ideal candidates will be graduates with at least four years analysis experience gained in a successful large company. Strong exposure to modern management techniques is essential together with an appreciation of programming, although formal training in this area is not a requirement. Project control experience is desirable together with the ability to lead a small group of ambitious, enthusiastic individuals.

Systems Analyst

to £6000

Candidates should be on the same career path as described in the requirements above, but at an earlier stage. The quality of the experience you have received will be of far greater importance than the quantity. Ambition and dedication together with an open-minded approach to problem solving, are essential qualities required.

These positions represent excellent 'ground floor' opportunities to play significant roles in one of Europe's most advanced data processing complexes, whilst perhaps enhancing your personal quality of life in an area renowned for good housing, schools and recreational facilities. Because of the nature of these positions requiring frequent contact with users at all levels throughout Europe, successful candidates can expect several short European trips per year.

The company has a policy of commitment to training, and suitable courses will be provided, both internally and externally. The benefits package is in line with a major international company and includes relocation assistance where appropriate.

To apply, or for further information, please contact Peter Williamson quoting Reference 1949. Either telephone or write to the address below or telephone his home number, Gravesend (0474) 50342 between 8 and 10pm in the evening or at the weekend.

Lloyd Chapman Associates

123, New Bond Street London W1Y0HR 01-408 1670

RSX Programmers Circa. £6,500 pa

Citibank NA, one of the world's largest international banks, is looking for two programmers to join their Operations Centre in South East London.

We need people to take responsibility for the development, programming and support of our transaction processing systems, men and women who want the challenge of a highly technical environment, and who can motivate others and put practical ideas to good use.

We currently use 1 megabyte and 5 x 1/4 megabyte PDP 11/70's and are continually reviewing our hardware and software inventory to meet the challenging demands of the Bank.

The experience necessary for the positions includes a sound knowledge of RSX11—Macro programming language, and systems experience in a commercial environment.

The salary range is £6,000-£7,500 p.a. A very attractive range of benefits — which will add considerably to your earnings in real terms — includes low-cost mortgage and personal loan plans, non-contributory pension, free restaurant, special Season Ticket loans and 4 weeks' holiday. Lushington House is a new and fully air-conditioned multi-storey building which is conveniently located near shops and Lushington BR station.

Applicants should write or telephone: Peter Russell, Systems Manager, Citibank NA, Lushington House, 25-Moleworth Street, London, SE13. Telephone: 01-552 4370 Ext. 3827/3888.

CITIBANK

ARUN DISTRICT COUNCIL SOUTH COAST

Required:

SYSTEMS CONTROLLER

Salary Scale:
£6613-£7230

Equipment:
Honeywell B2/40 Disc and Tape (178K)

Responsibilities:

- * Management of the Program Development Section, comprising Systems Analyst, Analyst Programmer, and two Trainee Programmers
- * Progress monitoring of Management Team development schedules
- * Provide system specifications for future development
- * Develop software systems and advise on use of software
- * Report to the Computer Services Officer

Location:

A new Computer Suite in Littlehampton, West Sussex, an area which offers many sporting, cultural and leisure pursuits.

If you have proven Systems Analysts, COBOL programming and JCL experience on major projects, and even better, experience of Honeywell Series 80 Level 62, why not apply to the Management Officer, Council Offices, Church St., Littlehampton, Telephone: Littlehampton 8733; ext. 375, for an application form and job description. Closing date: 31st May, 1979.

We've made things easy for you!

If you're chasing a new job or a new contract, save time by filling in your application form here and now.

Personal Please write in ballpoint, using block capitals.

Surname _____ Forenames _____

Address _____

Tel. Home _____ Office (discretion will be used) _____

Age _____ Place of Birth _____ Car? _____

Are you prepared to relocate? _____ UK/Abroad (delete) _____

Experience Place no. of yrs. in box, e.g. IBM 360/370 **4**

Machines: Please specify model. Applications

IBM 360/370	Commercial
IBM others (specify)	Financial
ICL 1900/2900	Payroll
ICL others (specify)	Production control
Honeywell	Stock control
Univac	Scientific
Burroughs	Realtime
PDP	Software
Other mainframes (specify)	Database
	Message switching
Other mini-computers (specify)	Communications
	Data transmission
	Central process
	Teleprocessing
	MIS/CPA/PERT*
	Magnetic tape
	Disc
	Others (specify)

Languages

Cobol	
Plan	
Assembler	
PL/I	
Fortran	
Filetab	
RPG11	
Auto/easy*/user code*	
Others (specify)	

Operating Systems

DOS	
OS	
George (specify)	
CICS*/JASP*/GRASP*	
DBO/IMP*/MVT*/IMS*/CMS*	
Others (specify)	

*Delete where inapplicable

Position sought Please state briefly the type of appointment you are seeking.

Minimum salary £ _____ Notice required/Date available _____

Signed _____ Date _____

Cut out the whole advertisement and post to the address below.



Knight Computer Services Limited

Staff Services Division of RSC Datacube Group and a member of Computing Services Association

Knight Computer Services Limited, 14 Old Park Lane, London W1Y 4NL

01-491 4706

or when busy 01-439 3411

John J. 1/25

TWO SHIFT OPERATIONS London W1

Our clients are a major West End Installation, working two shifts only Monday/Friday. They offer sound career progression, further training, and good working conditions in modern offices. Current openings are for:

SHIFT LEADERS Up to £4600

Requirement is for a minimum of two years' operating experience (on any mainframe), aged 22 or over, at least 4 'O' levels, and some leadership experience. (Ref. 626)

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This will interest operators (aged 22 or over, and at least 4 'O' levels) with practical operating experience on any mainframe, probably one year or more. (Ref. 541)

If you would like to work more congenial hours and at the same time extend your knowledge, ring us for a confidential talk, quoting the appropriate reference.

EDP SYSTEMS LTD
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Applications are invited for the following posts in the new Computer Centre

CHIEF SYSTEMS PROGRAMMER

Salary £5,748-£9,390 per annum + £312 per annum Salary Supplement. Applicants should possess a degree or equivalent qualification and have had considerable experience of systems programming.

SYSTEMS PROGRAMMER

Salary £3,967-£4,320 per annum + £312 per annum Salary Supplement. Applicants should possess appropriate qualifications with experience of systems programming, preferably in an educational establishment.

PROGRAMMER

Salary £2,987-£4,320 per annum + £312 per annum Salary Supplement. Applicants should possess appropriate qualifications with experience of programming in a variety of computer languages, preferably in an educational establishment.

Further particulars and application forms available from:
The Personnel Office
The Polytechnic of Wales
Cardiff
Mid-Cherwyn
Telephone (0443) 401133
Opening date May 21st, 1979.

COBOL OS

W. LONDON

£220 p.w.

01-262 2251

University of Bradford ASSISTANT OPERATIONS SUPERVISOR (Ref. CL/AOS/CW)

Applications are invited from men and women with operating and supervisory experience for the above post in the Computing Laboratory, to assist the Operations Supervisor with staff training and the running of the 3 shift operation of a large ICL 1904 installation running under GEORGE 3 operating systems. Further particulars available. Salary range £3,025-£4,540 per annum (under review). Application forms and further particulars are available from the Personnel Office, Room 547, University Main Building, Richmond Road, Bradford BD7 1DP. Tel: 0547 33486 ext. 262. Please quote reference.

COBOL DOS/VS

C. LONDON

£210 p.w.

01-262 2251

LONDON CITY COUNCIL CITY TREASURER'S DEPARTMENT COMPUTER LIAISON OFFICER

APPLY TO: 04461-2320 + 312
Applications are invited for the post to direct the operation of the Council's Computer Department and to act as liaison between the Council and the computer industry. The successful candidate will be responsible for the day-to-day operation of the Council's computer system and for the development of the system to meet the needs of the Council. The successful candidate will be responsible for the day-to-day operation of the Council's computer system and for the development of the system to meet the needs of the Council. The successful candidate will be responsible for the day-to-day operation of the Council's computer system and for the development of the system to meet the needs of the Council.

COBOL OS

SURREY

£200 p.w.

01-262 2251

Oasis Oil Company of Libya Inc. CICS-Systems Software Support £12,000 net-Married Status.

Our clients, the largest oil producer in Libya, require a SOFTWARE SYSTEMS SPECIALIST based in Tripoli.

Applicants must hold a degree with a minimum of FIVE years experience in software support; in depth experience with CICS, VS, DOS/VS, VSAM and POWER/VS on IBM 370 including operating system generation and maintenance; CICS software implementation, maintenance and system tuning; technical advice to applications programmers. Duties will include overall responsibility for all software support, evolution and feasibility studies of proprietary software systems and administration and control of the time planning environment as Data Base Administrator.

The Computer System is an IBM 370 135 with 512 K core, disk and tape units. 3270 series terminals are now being installed. Languages are ANS/COBOL, MARK IV, with minor emphasis on Fortran and Assembler. Salary will be negotiable around £12,000 per annum NET commensurate with qualifications and experience, family and residential status in Libya.

Benefits include:
• Child education allowances
• 30 days annual vacation with travel
• Free medical care
• Attractive savings plan
Please forward resume of background quoting reference H/41 CW to Charles Hyde, Charles R. Lister International Ltd., Aeradio House, Hayes Road, Southall, Middlesex.

LISTER
Charles R. Lister International Ltd
Personnel Consultancy
An IAL company

Data Processing Manager

Nigeria

c. £18,000 + substantial benefits

An experienced Data Processing Manager is required to develop the group computer department situated in Lagos. The computer is an ICL 1902A/48K and the department has a staff of 30.

The Manager will be expected to liaise with the user companies in Nigeria to develop the department as a group service to meet the expanding needs of the companies and to give the necessary drive and direction to achieving the agreed systems. Experience of working in a

developing country, preferably in Africa, would be desirable. Salary and benefits fully reflect the location and the importance of the job.
Ref: M9094ICW

REPLIES will be forwarded direct, unopened and in confidence to the client unless addressed to our Security Manager listing companies to which they may not be sent. They should include comprehensive career details, not refer to previous correspondence with PA and quote the reference on the envelope.

PA Advertising

Norwich Union House, 73/79 King Street, Manchester M2 2JH Tel: 061-236 4531



A member of PA International

Our Client is one of Europe's leading Software Houses and is pinning in the development of microprocessor based systems. They are looking for more

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to assess, answer and respond to an ever-growing flood of enquiries from industrial companies anxious to explore and harness the power of the micro-processor

ENGINEERING APPLICATIONS

Interested applicants should have a degree or equivalent ideally in an engineering discipline and have gained appreciable industrial experience. Most importantly they will have been involved in developing microprocessor based systems and be excited by their potential. These appointments will be based in

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and carry very attractive salaries and fringe benefits. Please telephone or write, quoting Reference CW.182.

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SENIOR CONSULTANTS

Central London Based

£9000 - £12000 p.a.

Are you seeking to further your career in an intellectually challenging environment? Do you have wide experience in a variety of computer and communications systems?

Our client, one of Europe's most successful consultancies, requires senior staff with an excellent academic and technical background and the ability to communicate effectively with others.

Immediate opportunities exist for people with a background in Image Processing or Pattern recognition. There are also requirements for specific expertise in -

• Remote Sensing • Data Communications • Military Command and Control Systems • Real-Time Systems • Databases/Information Retrieval

For further details concerning these appointments please contact Eddie Howard

Edmund Howard & Partners

5 Brighton Road, Surbiton, Surrey, England. Tel - 01 399 9183

PROGRAM/DESIGNERS

To £7,000

An international organisation require experienced Designers to redesign the Financial Accounting Systems, be involved in the planning and specification of various phases and the supervision of programmers. WEST OF LONDON.

SYSTEMS ANALYST To £7,000

Analyst with 1/2 years' experience are required to join a progressive company offering excellent career prospects. You will assist the Senior Analyst and learn with Program Designers to redesign existing systems. NR SOUTHALL.

SYSTEMS ANALYSTS

£5,000-£8,500

Candidates with at least 18 months systems experience preferably with degree, HNC or HND, are required for Commercial Systems. Colchester/Military experience useful. W. SURREY.

ANALYST/SOFTWARE PROG.

To £6,500

To produce software estimates, carry out system design, module design and the implementation of these. Software experience preferably with real-time mini-computer systems useful. Prospects of Team Leadership. MID-ESSEX.

PROJECT LEADERS To £8,000

A progressive organisation with a well established name is seeking Senior Analysts or Project Leaders to control teams of projects covering various commercial applications. NR. SURBITON.

OPERATORS £3,350-£4,400

Honeywell 68/80 4-shift system. Bonus. Relocation. LIVERPOOL.

PROGRAMMERS

£5,000-£7,000

FARNBOROUGH, Hants. PL1 for IBM 370/158 SURBITON (N.). 2 yrs. Cobol for ICL 1900 UXBRIDGE 3 yrs. Cobol + some systems LONDON ECL Honeywell 728 LONDON SW1, 1 1/2 yrs. and over of Basic or Basic + on Mils LONDON WC2, IBM 370 MILTON KEYNES, Software Engineer with Assembler/Basic, £8,000

We have many more vacancies for Programmers of all levels Surrey, Berkshire, Sussex, Kent, Middlesex, Essex and London.

Please telephone for an application form if interested in one of the above vacancies or for details of vacancies in your area.

AMES PERSONNEL

Employment Agency, Suite 10, Dryden Chambers, 119, Oxford Street, London W1R 0PA. Tel: 01-434 1000

PROGRAMMERS/ANALYSTS Up to £5,300 p.a.

Programmers/Analysts are required by Barclays Unicorn Group Ltd., a leading Unit Trust and Life Assurance Company, to develop Online Systems for a Data General mini.

We are installing a 512KB Eclipse with 2 x 20MB disks and 16 v.d.u.'s to act as a front-end to our ICL Main-frame Systems. The first phase of development covers Online Data Capture and New Business processing.

This position will appeal to a programmer with at least 3 years experience who is keen to move into systems work. The successful applicant will have a good academic background and COBOL would be an advantage. This post offers the challenge of working in a small team at our East London Head Office, where the scope exists for all members to achieve their full potential.

The salary range is £4,600 to £5,300 p.a. plus productivity bonus. As a Barclays Bank employee, the conditions of employment and fringe benefits are substantial and include a non-contributory pension scheme, staff restaurant and luncheon vouchers, a profit-sharing scheme and also a special house purchase scheme.

Applicants should apply in writing to:-

The Staff Manager,
Barclays Bank Trust Co. Ltd.,
Juxon House, 94 St. Paul's Churchyard,
London EC4M 8EH

BARCLAYS

LONDON BOROUGH OF BROMLEY BOROUGH TREASURER'S DEPARTMENT

Principal Project Leader

Salary up to £7,551 p.a.

REF: B.262

A senior appointment being one of three Principal Project Leaders responsible for leading multi-discipline teams of Analysts and Programmers engaged in the development of computer systems is required with a proven background of successful systems implementation; NCC Systems certificate or equivalent and education to degree standard will be expected.

Programming Team Leader

Salary up to £6,663 p.a.

REF: B.266

Experienced Programmer, conversant with COBOL, required to supervise a small programming team and to support Principal Project Leader in the design, development and maintenance of computer systems. Knowledge of PLAN and GEORGE 3 would be an advantage.

THE INSTALLATION consists of an ICL 1903T 128K Computer with disc and M/Tape running under the GEORGE 3 Operating System which supports an on-line teleprocessing and MOP service during prime shift in addition to batch processing and remote job entry. Key to Disc data preparation service.

THE WORK involves primarily the development of on-line T.P. systems and maintenance of existing batch systems until redeveloped. The whole concept of future development plans and hardware requirements is currently under review. A DATABASE MANAGEMENT system, together with the adoption of STRUCTURED PROGRAMMING techniques is now being implemented.

STARTING SALARIES will be commensurate with experience and qualifications up to the maximum quoted. Phase IV salary award will be additional to the above quoted amounts.

ADDITIONAL BENEFITS INCLUDE:
• Flexible working hours • Excellent annual leave - 28 days per year • Assistance with relocation expenses • Unrestricted rail ticket loans • Caravan and Social Club facilities

LOCATION - BROMLEY, KENT, which is on the outskirts of Greater London, primarily residential and on the fringe of the green belt and Kent countryside. Further information regarding duties etc. available from the Computer Development Manager. Tel: 01-454 4389 ext. 3206.

Application forms from Assistant Chief Executive (Personnel), Town Hall, Bromley, Kent BR1 1BB. Tel: 01-454 3233 ext 3215.

SOFTWARE ENGINEER

UP TO £7,500 P.A.

We are leaders in the field of advanced materials test equipment, and need an experienced engineer to augment our software systems department. The team is small, so you will be given immediate involvement in the design of programmes for an enormous variety of applications. These include: Earthquake simulation, flight simulation, fatigue studies and control of dynamic test machines.

Mini computer experience is essential, preferably involving the use of Fortran and Assembler on PDP11, GEC 4000 or Hewlett Packard 1000 Series. Salary is negotiable up to £7,500 p.a. according to experience with relocation expenses where appropriate.

Please apply in writing, or telephone:
The Personnel Manager
Servotest Limited
Sarnfield Road
Greenford, Middlesex UB6 7AA
01-898 1652



Programmers**Up to £14,000 P.A.****Munich**

The Company is a leading plastics manufacturer with production plants throughout Europe (Germany, Holland, Belgium and Italy). The group employs circa 2,500 personnel and is affiliated to a major chemicals organisation.

The System will be enhanced by the arrival of an IBM 4331/1 megabyte machine scheduled for installation in September '79.

The current hardware consists of a 370/125 512k under DOS/VS utilising DBOMP, DL/1, VSAM and CICS are used for various on-line and batch systems. The 370 end the 4331 will be replaced by a 4341/2 megabyte in 1981.

These appointments require experienced organisation programmers with IBM Assembler on 370s. On-line expertise would prove most useful and some PL/1 or DL/1 would be a plus point. A basic knowledge of German is essential.

For further details concerning these appointments, please contact Eddie Howard

REAL TIME PROGRAMMERS**UK & OVERSEAS — £ DEPENDENT ON LOCATION**

Take advantage of our position as one of the leading recruitment specialists in the field of scientific programming. Today, more than ever, there is a demand for highly skilled personnel with the ability to tackle wide ranging projects in the design and development of scientific computer systems. If you hold a degree in a scientific discipline or have relevant practical experience of real time mini computer systems, using either ASSEMBLER, BASIC + MACRO 11, CORAL or FORTRAN, then give us a ring quoting ref. CW237.

TECHNICAL SUPPORT PROGRAMMERS**£6-£7,500 + LONDON AND THE SOUTH**

You will play a very important front line assisting the sales team of a large international organisation. Responsibilities and duties will necessitate working on client premises periodically, ascertaining and compiling technical specifications and will assist the sales force to successfully accomplish their tasks. Applicants must possess a good commercial D.P. background along with a pleasing and helpful attitude.

For further details please quote CW238.

Edmund Howard & Partners

5 BRIGHTON ROAD, BURBITON, SURREY, ENGLAND. TEL: 01-389 918 3

Computer Personnel Consultants**D.P. PROFESSIONALS****LONDON**

This fast growing software house based in central London with offices overseas is recruiting all areas of D.P. staff. They urgently need experienced professionals to join existing projects or to manage new ones. The right candidates for the Project Leader's position will have had at least 4 years' programming experience, be used to client liaison at all levels and be able to supervise programming staff. Programmers and Senior Programmers should have on-line experience, written user documentation and some familiarity with working on mini computers. We also have requirements for IBM mini RPGII programmers to be based in North London but working on client sites in the City.

NEGOTIABLE

Ref: 17/1

TECHNICAL SUPPORT**CITY****to £7,500 +**

Our clients, who are based in the City, require technical support staff with experience of PL1 and preferably with knowledge of CICS, IMS, OS/VS/DL1. The work is mainly on financial applications supporting a T.P. network of 90 terminals. The company offers excellent conditions of employment.

Ref: 17/2

ANALYST/PROGRAMMERS**GERMANY****from £10,000 +**

Our clients in Germany have retained Informatix to assist in the recruitment of their permanent D.P. staff. The prime requisites are 2 years' + programming experience with in-depth knowledge of COBOL on IMS DOS or on ICL 1900 with GEORGE II+. Initial interviews will be held in London during May.

Ref: 17/3

INFORMATIX UNITED KINGDOM AND OVERSEAS INDEX**Haven Informatix Limited**

24 Grays Inn Road London WC1X 8HR Telephone 01-831 6055 Telex 299539 HAVEN G

CAPP ASSOCIATES group provides permanent and contract recruitment services to clients and applicants

NCR CYPRUS BASED — Salaries to \$15,000**Travel In Middle East and Africa**

The NCR Regional Management Information Systems Centre, Middle East / Africa based in Nicosia, Cyprus, has immediate vacancies for:

Analyst / Programmers (2)

Responsibility will be in the area of enhancing, maintaining and installing packages for business systems already developed on a corporate basis. New sub-systems and programs for teleprocessing links with Regional Centres may also be needed. Skills required are as follows:

- ★ A good basic education
- ★ Strong business systems knowledge
- ★ Minimum 4 years' analysis and COBOL programming experience
- ★ Experience of NCR Hardware preferred
- ★ Ability to work with differing levels of staff and nationalities

The requirements offer project leader openings, challenging assignments and opportunities for professional growth.

These positions offer very attractive salaries in a country with a relatively low cost of living and the opportunity to travel widely in both Africa and the Middle East.

Positions open to male & female applicants, please telephone (24 hour service) for initial discussion or write to address below. QUOTE REF.

COMPUTER AND PERSONNEL CONSULTANTS **CAPP ASSOCIATES** LONDON AND MANCHESTER **01-686 9693** A.M.P. HOUSE, GERRARD RD, CROYDON, SURREY

COMPUTER PROJECT LEADER**£6513 - £7230 p.a. (under review)**

Post Ref. FIN/CPLI CW

SYSTEMS ANALYST**£5727 - £6080 p.a. (under review)**

Post Ref. FIN/SAI CW

Applications are invited from experienced staff for either of the above posts which result from another of our project leaders moving to the Middle East. Project Leaders rank at third level in our proposed new structure with a personal responsibility for computer advice to a group of user divisions and for conducting costed feasibility studies. Leading a team of 3/4 analysts/programmers (which may be increased later) they will develop new applications in our 5 year plan whilst maintaining existing ones. Systems analysts rank next within a project team. Initial workload will include conversion. All applicants must be able to demonstrate a record of successfully completed projects and should have relevant experience: 5 years for Project Leader, 3 for Systems Analyst. They should also hold a professional qualification or degree. The Council serves a population of 450,000, employs 25,000 and spends a budget of about £100 million. The computer section has 110 staff (35 in Systems/Programming area) and provides a sophisticated bureau service to internal divisions and to schools, using a mainframe, seven minis, all with associated terminal network and micro computers. We are in the process of conversion from a 192K ICL 1904A running 3 shifts under GEORGE II to a 394K Honeywell 98 DPS 100 with GCOS, GENSYS and OMIV and an ICL 2904. Assistance with removal expenses may be available. The above salary figures are inclusive of supplement. The above posts are open to both men and women. Application forms are available from the Principal Staffing and Training Officer, Directorate of Finance, Britannia House, Hallings, Bedford BD1 1HX.



City of Bradford Metropolitan Council

Fareham Borough Council

Borough Treasurer's Department**Senior Programmer****Post No. T.47****Salary Grade AP.5 (£4,773 - £5,073 p.a. inclusive)**

Applicants must be experienced COBOL programmers for this key position. The person appointed will be responsible for all programming functions and work includes development of new applications of both on-line and batch systems. The Council's present computer installation, a Honeywell Series 200, is being replaced shortly with a Honeywell Level 84/20 256K, disks and tapes, running under GCOS, with I.O.F. facility and using T.O.S. and I.O.B. The compensating salary will be determined having regard to experience.

100% removal expenses. Up to £500 payable towards legal and estate agents fees plus generous disturbance and separation allowances. Flexible working hours. Temporary housing accommodation may also be available. For application forms and further details, write to the Personnel and Management Services Officer, Box No. 16, Fareham Borough Council, Olive Way, Fareham, Hants. PO18 7PR (Tel. Fareham 236100; Ext. 232). Closing date for receipt of applications 15th May 1979.

Contract**Programmers-Analysts**

If you thinking of doing contract work why not start here by registering now for immediate and forthcoming requirements.

For further details contact: Bridget Kotchie

RENDECK LTD. 100 New Bond St. London W1. Tel: 01-629 5438



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THAMES JOINT COMPUTER COMMITTEE
SYSTEMS ANALYST/PROGRAMMER
£4,773-£5,086 p.a. incl. (AP5/901)

The Committee operates a Honeywell 62/40 on behalf of the Thames and Dover District Councils and consideration is being given to the use of on-line applications by both user authorities. A suitably experienced person is required to assist in improving existing systems and developing new systems. Applicants should preferably have a sound knowledge of systems analysis and programming in COBOL. Consideration will be given to housing accommodation and a generous disturbance allowance scheme is in operation. Applications giving full details of experience to date to: The Computer Manager, Thames Computer Centre, Upper Road, Ramsgate, Kent CT12 5AA by 15th May, 1979.

**2903/4
RPG II
BOMP
HANTS**

c £220 p.w.

01-262 2251

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OS/CICS
W. LONDON**

£240 p.w.

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OS
S. LONDON**

£200 p.w.

01-262 2251

TWO SENIOR POSITIONS IN APPLICATIONS SOFTWARE

IN A BRAND NEW DIVISION OF A LEADING MINI COMPUTER MANUFACTURER BASED WEST OF LONDON

Our Clients are one of the foremost manufacturers of mini computers in the world. Their presence in the United Kingdom and Europe has been envied and respected for many years.

Traditionally, they have marketed their powerful range of equipment in both scientific and commercial environments by the supply of hardware and operating software only.

Due to increased demand by their users, they are to open a separate division in the United Kingdom responsible for applications software thereby giving them the ability to offer total systems. This decision has led to the creation of two senior positions.

PROJECT MANAGER / MARKETEER**CIRCA £10,500 P.A. PLUS CAR**

This key role will probably be filled by the eventual manager of the new division. The job is multi faceted and essentially involves marketing support to the Sales force and interfacing with Clients and prospects in defining and qualifying business involvement with them.

Clearly, candidates should be very technically capable and have a wide range of applications knowledge within scientific or commercial disciplines or both. The eventual objective is to manage the division through a hierarchical structure as it develops.

Applicants currently in, or who have held, senior support roles with a manufacturer or software house are likely to best identify with our requirements.

SENIOR ANALYST / PROGRAMMER**CIRCA £8,000 P.A. PLUS CAR**

Candidates for this position will have a minimum of five years' experience on minis and a good working knowledge of both assembler level and high level (e.g. COBOL, BASIC, PL1, FORTRAN) languages. The last two years would have been spent as a Senior Analyst/Programmer preferably on commercial systems.

It is essential that the analysts experience has been over a wide range of applications, preferably commercial, and the ability to manage a team is also significant.

WITHIN THEIR RELATIVE STRATA, THESE MUST BE TWO OF THE MOST EXCITING POSITIONS CURRENTLY VACANT AND BOTH HAVE EXCELLENT CAREER DEVELOPMENT OPPORTUNITIES.

FOR FURTHER INFORMATION AND TO ARRANGE AN INTERVIEW, PLEASE TELEPHONE THE ADVISING DIRECTOR, BOB BOWER.

Ref: CW/169

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE
HUTTON STREET, LONDON EC1A 4HH

TELEPHONE 01-383 7741 (10 LINES)

Hutton
RECRUITMENT CONSULTANTS

App, in 15/50

ASSISTANT AUDIT MANAGER

Computer Audit

Cardiff up to £8160

Wales Gas, a Region of British Gas, is seeking an Assistant Audit Manager (Computer Audit).

The post is responsible to the Audit Manager for providing a comprehensive computer audit coverage and includes the investigation of computer held information and involvement in the development of the Region's computer systems.

The installation is continually developing and is currently a Burroughs twin processor B4800 and 4700 with an extensive terminal network for on-line enquiry and updating facilities.

You will need to have a degree or professional qualification and an in depth understanding and experience of large scale computer systems and operations. Accounting or Audit experience would be an advantage but, if necessary, training will be given.

Prospects exist for development beyond Audit throughout British Gas.

Salary will be in the range £6800-£8160, plus current self-financing productivity payment and the benefits normally expected of a large progressive organisation including assistance with relocation expenses where appropriate.

For further information and an application form please telephone (0222) 33131 extension 3201 or write to the Personnel Development Manager, Wales Gas, Snelling House, Bute Terrace, Cardiff.

WALES GAS
NWY CYMRU

Looking for Opportunities in the
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NETWORK SUPPORT ASSISTANT

Croydon

Starting salary not less than £5163 plus
self-financing productivity payment.

We are currently expanding our TP Network from 350-800 Remote Terminals Reporting to the Network Controller. The Network Support Assistant will assume specific responsibilities in the following areas:

Equipment Installation Management
Network Traffic Studies
Trouble-shooting
In-House Testing of New Developments

We expect that the successful applicant will have had several years practical experience of data communications, possibly with a telecommunications organisation, or a terminal equipment supplier, and will now be looking for broader experience in large scale Data Network Management.

Write giving full details, within 7 days, and quoting Ref. 05088 to: Personnel Manager, Segus, Segus House, Kethering Street, Croydon CR9 1JU.

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CONTACT US, THE SPECIALISTS IN THESE FIELDS
We urgently require Programmers with experience of Fortran, Assembler, C or Basic for Real-time Applications.

Jobs from £3,500 to £8,000 in all areas. Phone now for a free list of vacancies.

Capital Appointments, 28 Wilmott Street, London, W1
Telephone: 01-637 8861 (day) - 01-636 9685 (even.)

A. McDowell Knaggs

COMPUTER RECRUITMENT, TRAINING & CONSULTANCY

Our successful Training and Consultancy activities have now been supplemented by the addition of a Permanent Staff Recruitment Division.

Being based in Worcester gives us access to **WORCESTERSHIRE, GLOUCESTERSHIRE, HEREFORDSHIRE and WEST MIDLANDS**. It is in these areas that we have been asked to recruit computer Professionals, from Programmers (at £3800) to Top Flight Managers (at £15,000).

Our most urgent needs is for **PROGRAMMING AND SYSTEMS** staff.

PROGRAMMERS

£3800 to £7000
GLOS./WORCS./B'HAM
All levels of Programmers inc. Senior Programmers and Team Leaders: ICL, IBM, BURROUGH, DEC and O.G. SITES running commercial and technological/scientific applications.

SYSTEMS

£5200 to £7500. GLOS./WORCS./B'HAM
Analysts, O. A./Programmers and Team Leaders with 1/5 yrs. exp. Programming and/or comp. knowledge advantageous.

OPS. & OPS. SUPPORT

£5AL NEG. GLOS./B'HAM
Operators, Shift Leaders and Trainee Operations Managers required. General operations experience with technical bias and/or potential MNGT. Especially required VME/B SUPPORT.

For complete details of these and other vacancies contact DON KNAGGS on 0905 427077 (0299 400036 EVENINGS/WEEKENDS) or write to THE MOUNT, 1 ST. JOHNS, WORCESTER.

Senior Programmer and Programmer

Digital Exploration Ltd. are the UK subsidiary of one of the world's leading independent geophysical contractors to the petroleum industry, Digicon Inc. of Houston, Texas.

As our young company expands, the small programming team needs men and women with a strong scientific/mathematical background to learn the specialised techniques we use in processing seismic data from Europe, the Middle East and Africa.

We are incorporating the powerful VAX 11/780 system into our international computer network, and you will be involved in the development of software for our latest advanced processing technique.

You will both need at least 3 years' experience in Fortran and assembly languages, and for the senior position some previous management responsibility is desirable. We offer a creative environment in pleasant surroundings, BUPA membership, free life assurance and contributory pension scheme, and a salary that will fully reflect your background and experience.

Please write with c.v. to the Processing Manager, Digital Exploration Ltd., Digicon Building, Portland Road, East Grinstead, Sussex RH19 4EB.

Tel: East Grinstead (0342) 28111.

ELF OIL (G.B.) LIMITED

SYSTEMS ANALYST

N. West C. £6000 +

Elf Oil (G.B.) Ltd. is the U.K. marketing subsidiary of an international oil company.

THE JOB

We require a Systems Analyst to investigate and analyse operational and commercial areas of our business, producing feasibility studies, system specifications and outline programme specifications for implementation by either internal or external programming resources.

THE PERSON

Applicants must have 3 years systems analysis experience and should have been responsible for the implementation of at least one major system from conception to completion. The person appointed will be responsible for the total data processing function in the absence of the Data Processing Manager.

THE REWARDS

Salary is negotiable in excess of £6000 and in addition, company benefits include 4 weeks holiday, £5 per week lunch vouchers, a generous pension and life assurance scheme and pleasant working conditions.

Please write or telephone for an application form to: Mrs. S. Angus Personnel Officer, Elf Oil (G.B.) Ltd., Elf House, PO Box 80, Altrincham, Cheshire WA14 1HD. Tel: 061-928 6477.

★ OS COBOL ★

Contract or permanent for May/June 1979. 12 months + assignment with our client in developing on-line sales order processing system within manufacturing environment. Training in IMS, DB/DC techniques will be given.

Contact: R. Carr or C. Phillips on 01-348 0038
FRASER WILLIAMS (LONDON) LTD.
38 WARREN STREET, LONDON W1F 8PD

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Call Richard Kaluzynski, Neil Williams or Suzy Gilham for details.



All vacancies are open to both male and female applicants. Phone anytime, or for an application form leave your name and address with our answering service.

Knight Computer Services Ltd.

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Staff Services Division of BOC DataSolve Group and a member of Computing Services Association

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MINI/MICRO PROGRAMMERS & ANALYSTS

Westinghouse Brake & Signal Co., a member of the Hawker Siddeley Group, has its main design and production facilities at Chippenham, Wiltshire, an extremely pleasant West Country location. Organised into separate operating units we are now recruiting for our Revenue Controls Division.

We are currently looking for a Programmer and a Systems Analyst to join a small team responsible for the design and development of software for mini and micro-computer based Automatic Fare Collection Systems and associated state-of-the-art equipment for applications mainly in transportation environments.

This aspect of our operations at Chippenham presents an exciting challenge to young experienced software professionals and an opportunity to join a rapidly expanding division with worldwide market potential.

Successful applicants, male or female, should possess HNC, Degree or equivalent together with a minimum of 2 years' programming/ systems experience preferably in PDP II, Micros, Data Communications using Assembler Corel or Fortran. Those with limited experience (but with ability and hard work) will also be considered as some training could be provided.

Salaries, negotiable according to experience. Free life assurance and contributory pension schemes together with generous assistance with relocation expenses where applicable.

Write with brief career details or telephone Miss F. T. Cox, Personnel Officer, Westinghouse Brake & Signal Co. Ltd., Tel. Chippenham (0248) 4141, Ext. 700.



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We need mature people with a wide range of data processing experience gained over at least 8 years, to act in consultancy and project management roles within a Government organisation, in a miniframe installation with communications environment of stand-alone/inter-active front-end computers. Your experience should embrace several of the following areas:-

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- Statistical systems
- Development of modelling systems
- Development of on-line systems
- Development of data base systems
- Experience of hardware evaluation
- Experience of software
- Project and management skills
- Experience of interactive systems

Fringe benefits include housing, education subsidies, generous relocation allowances and home leave allowances.

We are hopeful of filling these positions in the very near future. Applications in writing giving experience, qualifications, present position, salary, age and age of dependants to:

Recruitment Attache,
Papua New Guinea High Commission,
14 Waterloo Place, London SW1R 4AR.

Papua New Guinea

Analyst/Senior Programmer

To lead a team responsible for the detailed design of interactive and batch mode information processing systems, using a GEC 4070 computer. You should have at least 5 years' experience in assembly and high level languages including FORTRAN IV and you should also be familiar with at least one Operating System and Job Control Language. Experience of multi-access systems and a knowledge of BASIC and CORAL 66 are desirable.

Programmer

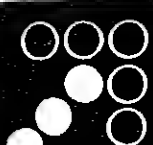
For flowcharting, writing and testing of programs, using a GEC 4070 computer.

Reporting to the Senior Programmer, you should have a minimum of two years' programming experience in FORTRAN and at least one assembly language. Some knowledge of BASIC and CORAL 66 is desirable.

Please telephone for an application form or write quoting ref: P/87 to:

Jack Burnie, Marconi Space & Defence Systems Ltd., Applied Electronics Laboratories, Browns Lane, The Airport, Portsmouth, Tel. Portsmouth (0705) 688414.

Marconi Space & Defence Systems (Portsmouth)
A GEC Marconi Electronics Company



SMR Sales & Marketing Recruiters Ltd
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Just look at your career history for a moment. How much kudos has your selling ability really gained from your present and previous employers? How much meaningful training have you received? Do you really know what it is like to work within a truly marketing oriented organisation? Are you really growing in career terms? Are you enjoying a high income today or is it just a case of jam tomorrow?

If you are already a successful Sales Executive your career could be greatly enhanced by joining one of the world's major computer manufacturers.

Our client really takes care of its sales people. They pay them generously, train them thoroughly and continuously, support them with enthusiastic competent technicians, provide them with real scope for creative selling, and above all ask them to sell a proven product range which is at the forefront of performance and technological development.

Continuing success and the promotion of existing personnel has now created a requirement for additional Sales Executives in

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South West and Southern
England
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If you are already a successful Sales Executive with direct experience of selling commercial applications systems and feel that your career is in need of enhancement, we would like to meet you.

Our client generally expects its Sales Executives to earn

in excess of £14,000 p.a.

as well as providing them with a COMPANY CAR and a variety of fringe benefits.

Please contact Alan Williams or Caroline Connabeer quoting reference ADH 059.

Tel: 01-734 9776

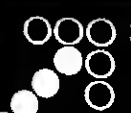
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Sales Executives

If you are seeking to advance your career rather than simply looking for another job then you need the objective guidance of an organisation which is totally conversant with all aspects of sales and marketing within the computer industry.

Although our activities are devoted to this area, we are not merely a recruitment organisation; we are the only company within the industry which also provides sales training, market research and product promotion.

We understand sales people because we have been there: the job our salesmen for a total of over 45 years, and we know where the best job opportunities are because we have access to all the significant computer companies.

So give us a call if you need help of any kind; we believe there is still room for all in business. Who knows, you might even get to speak with TRADER!

Telephone 01 734 9776
A Sales & Marketing Services Company
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DEPARTMENT OF COMPUTER STUDIES

LECTURER I

In Computer Operations required from 1st September 1979, based at Elstree Way, Boreham Wood

Applications are invited from suitably qualified and experienced persons for the post. Applicants should have considerable practical experience and be prepared to undertake In-Service Teacher Training

Assistance with removal expenses in approved cases

Forms and further details from the post of Computer Operator. The Computing Service is based on a Dec-10 with 512K of main store, discs and mag tape. A wide range of software is available for users

COBOL OS

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£210 p.w.

01-262 2251

The Polytechnic of North London Computing Service COMPUTER OPERATOR

Applications are invited for the post of Computer Operator. The Computing Service is based on a Dec-10 with 512K of main store, discs and mag tape. A wide range of software is available for users

Shift work will be required, as the computer is manned from 7 a.m. to 11 p.m. on Monday to Friday. Previous experience is not necessary as training will be given. This is a useful opportunity for anyone who wants to gain experience in computing, and encouragement will be given for career development.

Salary on scale to £3748 inclusive of London Allowance plus shift allowance. Further information from the Head of the Computing Service, The Polytechnic of North London, Holloway Road, N7 8DB

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New installation Burroughs 8800 under C.M.S. Top Salary Wholesale Fashions.

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THE SALES AND MARKETING BIT

Getting the most out of sales manager's visits

AN essential part of a sales manager's function is to spend some of his time with the troops at the front. Inasmuch as a salesman's success is probably a direct function of the time he doesn't spend in the office, a desk-bound sales manager cannot expect to be in touch with the realities of the sales arena.

A few weeks ago Tony, a minicomputer salesman, wrote asking what I thought was the normal reaction of a client to the sudden appearance of sales management and what was the benefit to all concerned of such an accompaniment. He also asked how the salesman could convert to good account a situation where the sales manager fails to show up (recouped from personal experience, by the sound of things).

The involvement of sales management in an ostensibly normal sales-call situation needs to be viewed from at least three angles: those of the salesman, the sales manager and the client. This analysis should be in the context of what each might hope both to contribute to and gain from the situation. This assumes a positive and constructive attitude on the part of all concerned.

Many salesmen treat a visit from their sales manager as an imposition. It shouldn't be! After all, if the process requires the formalities of creating a false impression then the salesman has a real problem, and if he has, who better to discuss it with than his direct superior? It is essential that a management visit be based on honesty if it is to be constructive. The problems and opportunities which exist for the salesman within his territory should be clearly stated and a basis created on which these problems can be best resolved and the opportunities exploited.

The salesman and the sales manager basically need to be asking the same questions of each other: ● This is the kind of person I am, this is the way I organise my territory and sell the company's products. How can you help me to improve my performance? ● These are the particular sales problems and opportunity situations in which I am involved. How can we work together to achieve the best outcome for our company?

What new company, product, competitive, general information do you have which can help me sell more effectively? ● These (if any) are the personal problems which I believe could be or are affecting my performance. I would like you to be aware of them and help me if you feel you can.

Clients by and large welcome visits by management and treat the situation as a confirmation of their importance to the supplier. However, one can get a variety of reactions from clients to the sudden appearance of heavyweights from head office.

Others claim up completely. Some dedicate the session to protecting and praising the salesman. Others are prepared to give information hitherto unavailable in the salesman. That is why it is important for each call to be planned individually according to the salesman's assessment of the situation and the personalities involved so that the role of the visiting sales manager can be used to best effect.

Whatever strategy is decided upon, any decision involving the pretence that the sales manager isn't a sales manager is usually a bad idea. The "My colleague from head office" routine is a puerile pursuit. One of the main points of strategy for such a call is to decide who will lead the conversation. If the situation is an attempt to push for a decision or obtain information which the salesman has been unable to obtain, it might well be advantageous for the sales manager to take control. Whereas a situation where a client becomes recalcitrant is best handled by the salesman himself.

It has to be played by ear and balanced according to the proportion of conversational involvement that creates the most constructive and empathetic atmosphere.

Tony's experience of his sales manager's non-appearance is the classic "What do you do when the company fails to deliver?" In my opinion the best action for the salesman to take is to tell a white lie and blame himself, and thus avoid any implied disrespect to the client.

No matter how questionable the sales manager's judgment in terms of priorities and ethics, the salesman should not criticise his manager in the eyes of the client; to do so is by implication a damnation of the company and its products. Far better to say something like "I must apologise, Mr. Manager's absence is entirely my fault. I gave him the wrong date. I hope we can arrange another meeting soon."

The means the salesman utilises for subsequently kicking his sales manager in the appropriate quarter is a matter entirely for his personal judgment. However, a formal apology from the sales manager to the client, whoever is blamed for the faux pas, can do no harm at all.

TRADER

Puzzle Answer

085
625
625
625

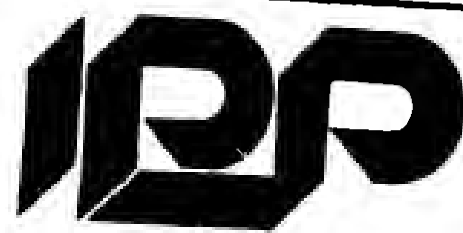
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If you have at least two years' DP experience, a programming background and you are looking for a career rather than a job then:

PHONE JACK COWDY
DIRECTOR
ON 01-603 7335



Information Processing People

58 Pembroke Road, London W8. Telephone: 01-603 7335/6. Teléx: 261298.
Computer Services & Recruitment Consultants.

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- ★ CO-ORDINATE SOFTWARE HOUSE ACTIVITIES

- ★ FREE BUPA
- ★ ANNUAL BONUS
- ★ 4 WEEKS' HOLIDAY

This small international group of companies have recently installed a new small IBM Machine to handle their distribution and specialised accounting systems.

A business analyst is required to take direct responsibility for co-ordinating the development of a distribution system with the user manager. The user manager will have direct responsibility for the day to day activities of the development team, and the analyst will be responsible to him for progress on the project.

Candidates living in West London will find it advantageous, as the main high security warehouse is located near Brentford.

The position offers real opportunity for progression to Project Management both within D.P. and within user areas.

JACK COWDY, DIRECTOR
on 01-603 7335

PRODUCT NOTES

Monitoring the power supply

ERSKINE Systems has added the Model 3500 to its range of power supply monitors and it was designed to provide a history of mains supply irregularities.

The Model 3500 enables any single or three phase power supply to be measured con-

tinuously. Source or load transients are identified and the hard copy printout indicates the value of the deviation, the date and the time to one second, if necessary. The monitor has its own built-in uninterruptible power system which keeps the unit alive during blackouts of up to two hours.

It operates unattended and provides valuable information on any AC supply between 50 and 600 volts.

When a disturbance occurs it is detected and digitally processed immediately, visual and audio alarms are activated, the printout records the occurrence and the type of event is stored in the memory.

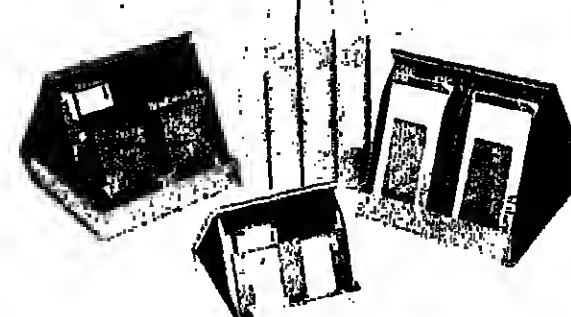
Once the event clears, the printout records the fact, which phases were affected and the voltage level of excursion of the phases involved.

A daily status is printed automatically at the end of each day indicating existing line voltages, threshold settings, together with type and number of events since last status printout.

Fast transients, over-voltages and under-voltages are accurately detected and recorded by the unit. Optionally transient duration, direction, polarity frequency error and under/over voltage duration can be monitored.

Further options allow simultaneous measurements of DC voltages while monitoring the AC line.

Erskine Systems Ltd (CW), Lee De Forest House, Eastfield, Scarborough, YO11 3DU. Tel: 0723 883511.



BFI Electronics' range of low cost library cases.

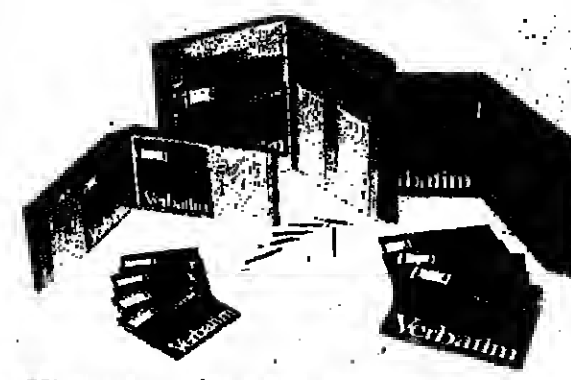
Easy access claim for library cases

BFI Electronics has introduced a range of low cost library cases for magnetic discs, mini-discs and magnetic cards. One of the cases is £1.85 (plus VAT) for the mini-disc case and £2.28 (plus VAT) for the standard discs and magnetic card cases.

BFI Electronics Ltd (CW), 518 Walton Road, West Molesey, KT8 6QP. Tel: 01-941 4066.

PCE that can take up to four boards

MODCOMP has introduced a peripheral controller enclosure which provides interfaces for up to four plug-in peripheral controller boards.



BFI Electronics' range of floppy disc binders.

Binders for storing, filing floppy discs

BFI Electronics has introduced a range of specialised binders for storage and filing of floppy discs. The binders, constructed from blue PVC material, are available for either standard or mini disc sizes and come in two capacities of either 10 or 20 discs.

The binders use a patented all-plastic binding system by which the discs are gripped down their entire length, but which allows each half to lay flat.

The double ended pages allow two floppy discs to be stored per leaf and the semi-transparent material allows the user to read identifying labels without removing the disc. Each page also incorporates additional pockets for users' filing or reference systems.

Finished in matching black and tan, it was designed to hold manuals, computer printouts and a drawer is included for miscellaneous items.

Cavendish King & Co Ltd (CW), Hermitage Chambers, The Hermitage, Richmond, Surrey, TW9 1JF. Tel: 01-894 4066.

Cleaner

TWO disc cartridge cleaners are now available from Data Efficiency. One is for front loading while the other is for top loading cartridges. The cleaner is priced at under £850.

Date Efficiency Ltd (CW), Mexted Road, Maylands Avenue, Hamlet Hempstead, HP2 7DX. Tel: 0442 57137.

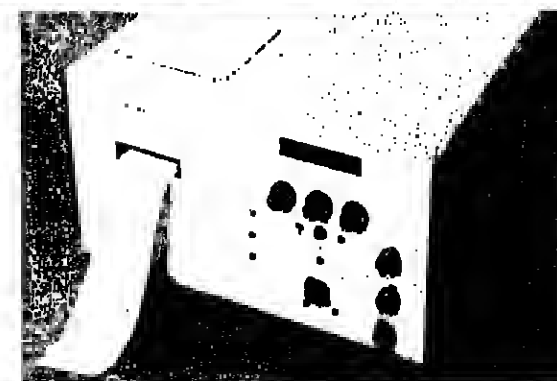
40 different size labels

SOME 40 different size labels are currently available from Computer Supplies, ranging from 64 x 24 mm (2.5 x 0.94 inches) to 127 x 48 mm (5 x 1.94 inches).

They are all self-adhesive and are applied to 80 grammes per square metre backing paper which is pre-perforated with sprocket holes.

Computer Supplies said that it could deliver within 24 hours to any customer in the North and Scotland from its own vans. Customers from outside this area are offered same day despatch via courier.

Computer Supplies Ltd (CW), 5 Union Street, Boynes, West Lothian, EH51 9AQ. Tel: 030-887 3393.



Enkline Systems Model 3800 power supply monitor.

Flexible storage system

A FLEXIBLE system for filing magnetic data cards is being introduced by Kordex. It is based on an A4 panel with a rod-type hinge which fits existing reference/display housing unit such as easel binders, desk stands, wall brackets or rotary stands.

Each panel holds 20 cards in individual pockets. Easel binders hold up to five or 15 panels (100 to 300 cards); desk stands and wall brackets take up to 30 panels (600 cards); end rotary stands up to 50 panels (1,000 cards).

In all cases, magnetic card panels are interchangeable with alternative rod-filing Kordex panels for strip filing, dexes or transparent display.

Numerous planning applications

CHARTWELL planning charts are available in two sizes and a choice of either the calendar or financial years, from H. W. Peel. They are printed in gold and blue with dates, days, week numbers and months on cartridge paper.

They can be used for numerous planning applications including staff holidays, progress and maintenance recording, scheduling of all descriptions, advertising campaigns, marketing programmes and production planning.

The charts cost 80p for two single A4 sheets, £1.14 for two single A1 sheets. Two sheets give a complete year's planning. The larger A1 chart includes weekends which can be used to record on and off duty weekend work.

They can be marked with open or pencil and overlays are available which have been specially designed to enable frequent alterations to be made to recorded information without damaging the surface of the chart.

Once overlays have been purchased, they can be used indefinitely. The overlays have a rigid back and lift-up transparent face so that entries can be easily changed.

Chartwell House, Joyner Drive, Greenford, UB8 3NX.

FROM Flexform is a full-height 6KD storage unit which incorporates its own filing component.

One attraction of the unit was that it provided opportunity for space saving storage by giving additional storage space upwards rather than outwards, thereby cutting office space costs, claimed Flexform.

It quoted an instance where the unit could take five rows of computer storage, six rows of shelf filing and five rows of lateral filing. A design survey service is also available to assist clients with any storage problems.

The unit is available in white, caramel or black laminate with dark brown shutters and internal on standard. The units are available CKD to allow for on-site assembly and its dimensions are 2,020 mm high, 1,040 mm wide and 500 mm deep. The units are free-standing and may be used as screens to add privacy to certain areas.

Flexform Ltd (CW), Easton Tower, 288 Euston Road, London, NW1 3DT. Tel: 01-357 0182.



Willis Computer Supplies' library case for storing floppy discs.

I/O controller

A STANDARD link I/O controller to interface to its standard I/O bus is now available from Modcomp.

The external interface is serial synchronous and conforms to HDLC, ADCCP and SDLC standards. The controller performs flag detection and generation, bit insertion and deletion and CRC computation independent of the CPU.

The controller will interface with most modems and direct memory transfers allows high speed operations, minimal system overheads and the remote I/O capability permits remote Classic processors to be loaded down-line.

The controller is available in three configurations: RS-232C, WE301/303 electrical interface and CCITT V35 high speed balanced voltage interface.

Modcomp Ltd (CW), Moly Millers Lane, Wokingham, RG11 3QT. Tel: 0784 788711.



FROM Systems Ltd's 3x3 foot rigid wall chart.

Portable disc cartridge damage detector

A PORTABLE inspector/cleaner designed to detect disc cartridge damage as well as to clean disc surfaces for both top load (type 2315) and front load (type 5440) disc cartridge has been announced by International Data Automation.

IDA, based at Virginia Water, Surrey, said that the unit, known as the Model 400, has been specifically designed with site engineers and computer operators in mind.

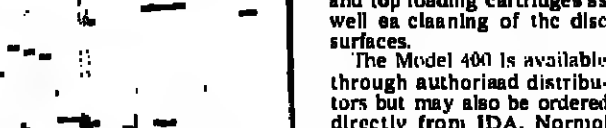
It quoted as examples of this, that the mirror/light assembly arm automatically positions itself and turns on the high intensity lights when a visual inspection of disc surfaces is to be carried out.

The inspection instruments incorporated into the Model 400 include a disc height gauge, a self-runout gauge, radial runout indicator, emittance height gauge and a mirror/light assembly.

The unit is mounted in an aluminium "zero" carrying case, permitting storage under a standard airline seat. It allows field engineers to verify the critical mechanical tolerances of both the front and top loading cartridges as well as cleaning of the disc surfaces.

The Model 400 is available through authorised distributors but may also be ordered directly from IDA. Normal quantity discounts are available for distributors and original equipment manufacturers.

International Data Automation Ltd (CW), 33 Abbots Drive, Virginia Water, GU24 4AH. Tel: 08804 2838.



Chartwell's 1978 planning chart.

Space saving cupboard units

FROM Flexform is a full-height 6KD storage unit which incorporates its own filing component.

One attraction of the unit was that it provided opportunity for space saving storage by giving additional storage space upwards rather than outwards, thereby cutting office space costs, claimed Flexform.

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Flexform Ltd (CW), Easton Tower, 288 Euston Road, London, NW1 3DT. Tel: 01-357 0182.

40% introductory discount

ANY customer placing an order for floppy or mini-floppy discs with Willis Computer Supplies can obtain library cases (pictured right) for storing these discs at a 40% introductory discount.

Made from polypropylene, a pop-up feature of the case allows labels to be read easily and permits easy selection, removal and replacement.

Flexible clips hold the discs firmly in the vertical position to prevent warpage and eliminate movement during shipment.

Available in grey or beige, the Willis library case normally costs £2.50 and £2.10 each respectively for the floppy and mini-floppy versions.

Willis Computer Supplies

Simulator

ION Systems Development has launched the Model 2880 - medium simulator which can operate at speeds up to 8,800 bps.

The design includes optical isolation, adjustable RTD delay, V24/RS 232C interface and modems application.

ION Systems Development Ltd (CW), Hattix Road, High Wycombe, Bucks, HP12 3SE. Tel: 0494 35028. Telex: 831862.

Sasoo rigid wall chart

FROM Systems Ltd's 3x3 foot rigid wall chart, specifically designed for an accurate picture of a development, performance and progress, by means of a 3x3 foot rigid wall chart, is available in three versions: a 3x3 foot rigid wall chart, a 3x3 foot rigid wall chart, and a 3x3 foot rigid wall chart.

FROM Systems Ltd (CW), 27 Hattix Road, Bromley, Tel: 01-854 2838.

DUBLIN

DP MANAGER PDP 11/34

start salary £7500-£9500 according to experience

THIS IS A KEY POSITION with a highly successful Irish Company which has identified the importance of information handling to its further profitable growth. The Company concerned is one of the leaders in its field and enjoys a continuing expansion rate of more than 30% per annum. A PDP 11/34 with 128K of memory and local VDUs has been successfully installed, using external assistance, and an experienced DP professional is now to be recruited to take responsibility for the DP function. Initially he or she will personally undertake any systems and programming work which may be required but expansion of the business is likely to lead in the future to a corresponding growth of the DP Dept. A new market analysis database is planned for the near future to supplement the existing suites of programs.

RESPONSIBILITIES

The successful applicant will work closely with top management, the following being the primary responsibilities of the post:

- (1) Ensuring that the installation runs effectively
- (2) Scheduling and planning operational work
- (3) Maintaining and enhancing existing programs
- (4) Developing and implementing new systems, as appropriate
- (5) Planning and undertaking further development of DP facilities

REQUIRED PROFILE

- (1) Good experience of (a) Systems development and implementation (b) Programming using BASIC +
- (2) Knowledge of the RSTS operating system
- (3) A sound personality and a good level of initiative

BY NEGOTIATION, THE REMUNERATION PACKAGE MAY BE ENHANCED WITH FURTHER ATTRACTIVE BENEFITS

Please apply by telephone, if possible, as there may be postal delays



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